

CHAPTER 4

POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE STONES RIVER WATERSHED

4.1 Background.

4.2. Characterization of HUC-11 Subwatersheds

4.2.A. 05130203010

4.2.B. 05130203020

4.2.C. 05130203030

4.2.D. 05130203040

4.2.E. 05130203050

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4.2.G. 05130203070

4.2.H. 05130203080

4.2.I. 05130203090

4.2.J. 05130203100

4.2.K. 05130203110

4.2.L. 05130203120

4.2.M. 05130203130

4.1 BACKGROUND. This chapter is organized by HUC-11 subwatershed, and the description of each subwatershed is divided into four parts:

- i. General description of the subwatershed
- ii. Description of point source contributions
- ii.a. Description of facilities discharging to water bodies listed on the 1998 303(d) list
- iii. Description of nonpoint source contributions

Information for this chapter was obtained from databases maintained by the Division of Water Pollution Control or provided in the WCS (Watershed Characterization System) data set. The WCS used was version 1.1 beta (developed by Tetra Tech, Inc for EPA Region IV) released in 2000.

WCS integrates with ArcView® v3.1 and Spatial Analyst® v1.1 to analyze user-delineated (sub)watersheds based on hydrologically connected water bodies. Reports are generated by integrating WCS with Microsoft® Word. Land Use/Land Cover information from 1992 MRLC (Multi-Resolution Land Cover) data are calculated based on the proportion of county-based land use/land cover in user-delineated (sub)watersheds. Nonpoint source data in WCS are based on data collected 1992–1998; nonpoint source data were reviewed by Tennessee NRCS staff.

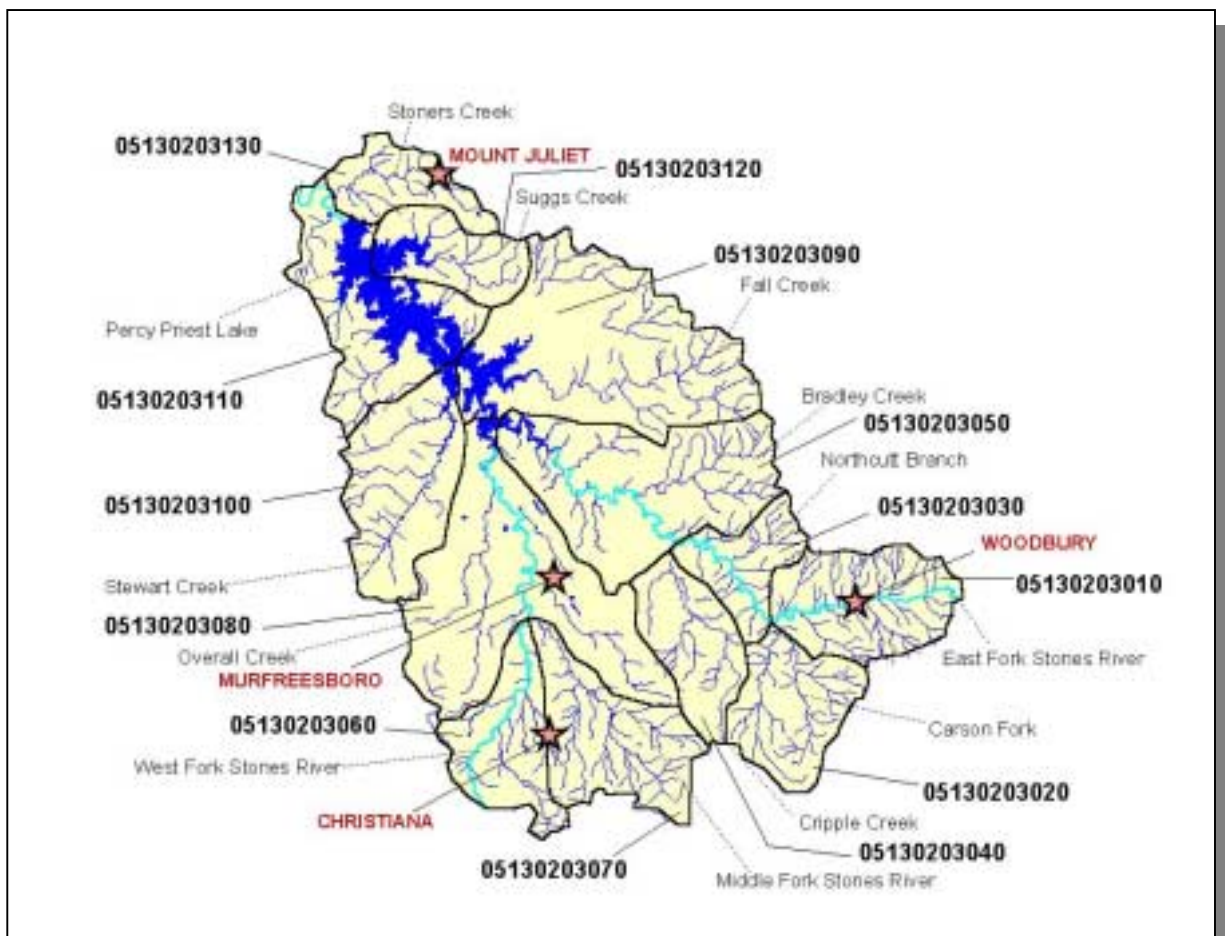


Figure 4-1. The Stones River Watershed is Composed of Thirteen USGS-Delineated Subwatersheds (11-Digit Subwatersheds). Locations of Christiana, Mount Juliet, Murfreesboro, and Woodbury are shown for reference.

4.2. CHARACTERIZATION OF HUC-11 SUBWATERSHEDS. The Watershed Characterization System (WCS) software and data sets provided by EPA Region 4 were used to characterize each subwatershed in the Stones River Watershed. HUC-14 polygons were aggregated to form the HUC-11 boundaries for data analysis.

HUC-11	HUC-14
05130203010	05130203010010 (East Fork Stones River)
05130203020	05130203010020 (Brawley's Fork)
05130203030	05130203010030 (East Fork Stones River)
05130203040	05130203010040 (Cripple Creek)
05130203050	05130203010050 (East Fork Stones River) 05130203010060 (Bradley Creek) 05130203010070 (East Fork Stones River)
05130203060	05130203020010 (West Fork Stones River)
05130203070	05130203020020 (Middle Fork Stones River)
05130203080	05130203020030 (West Fork Stones River) 05130203020040 (Lytle Creek) 05130203020050 (Overall Creek)
05130203090	05130203030020 (Fall Creek) 05130203030030 (Spring Creek)
05130203100	05130203030040 (Stewart Creek)
05130203110	05130203030010 (Percy Priest Lake) 05130203030050 (Percy Priest Lake) 05130203030080 (Stones River)
05130203120	05130203030060 (Suggs Creek)
05130203130	05130203030070 (Stoner Creek)

Table 4-1. HUC-14 Drainage Areas are Nested Within HUC-11 Drainages. USGS delineated the HUC-11 drainage areas. NRCS inventories and manages the physical database for HUC-14 drainage areas.

4.2.A. 05130203010.

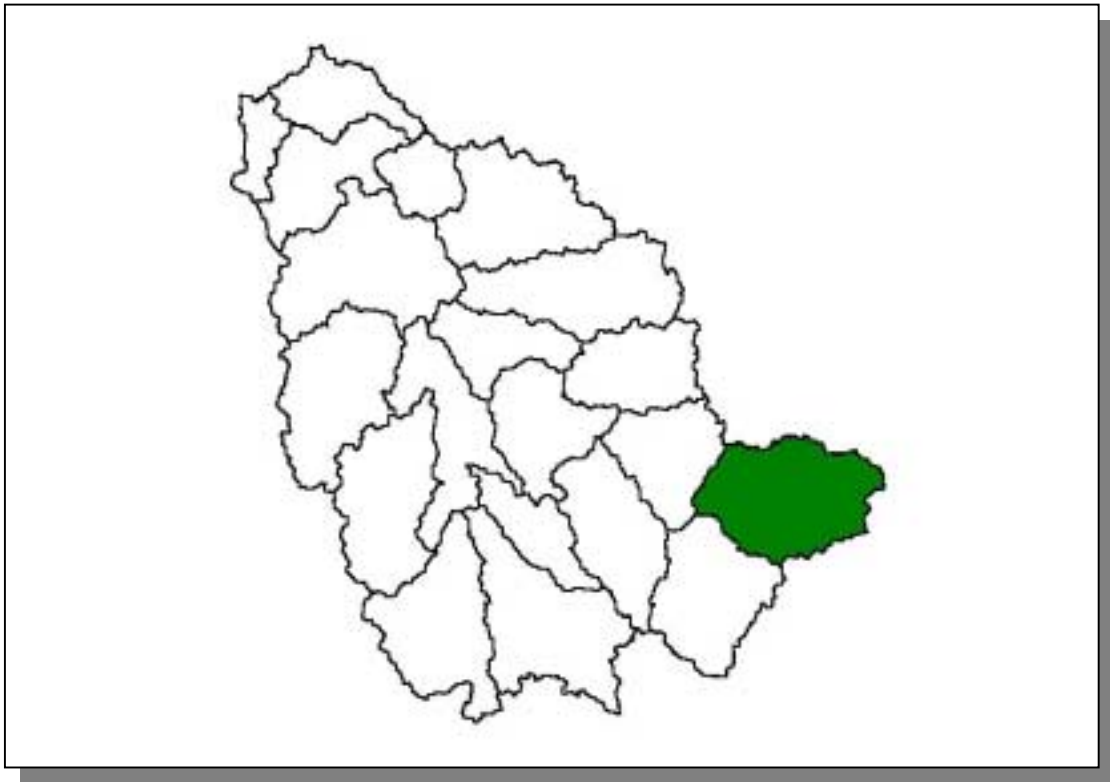


Figure 4-2. Location of Subwatershed 05130203010. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.A.i. General Description.

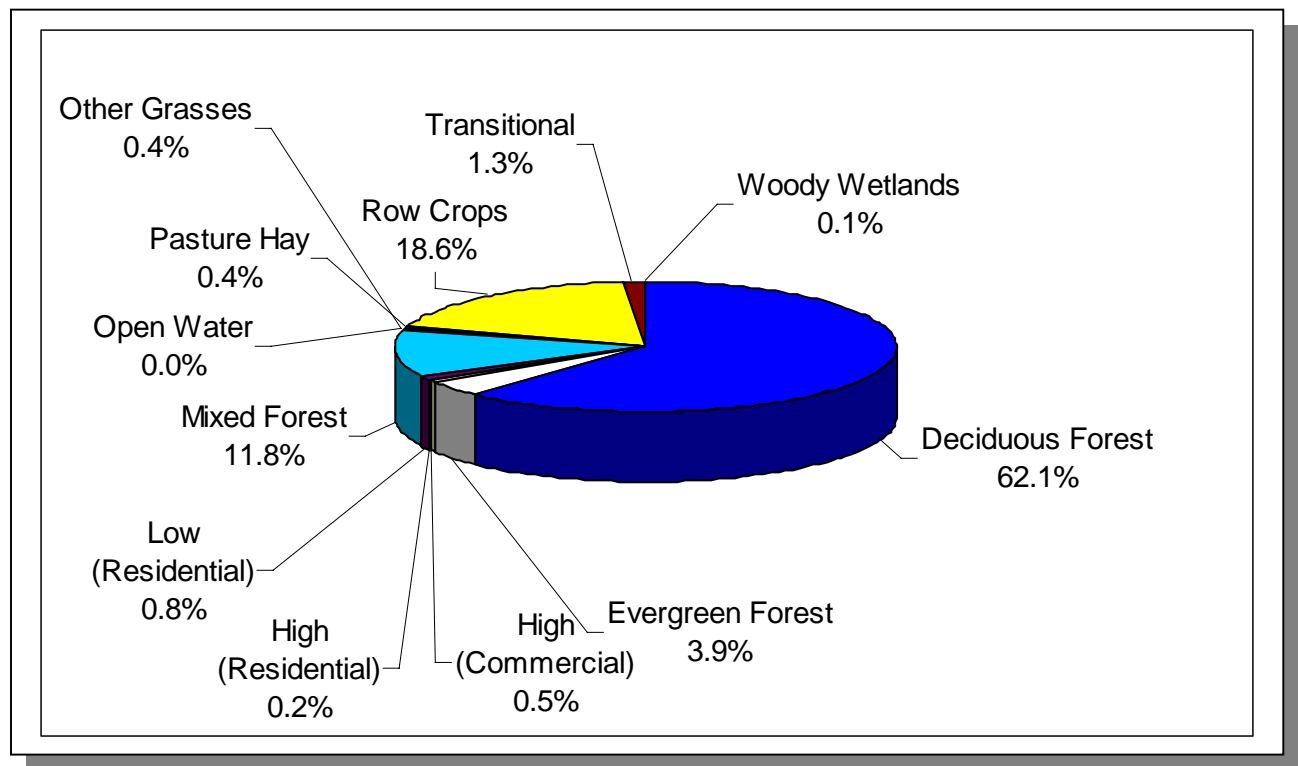


Figure 4-3. Land Use Distribution in Subwatershed 05130203010. More information is provided in Stones-Appendix IV.

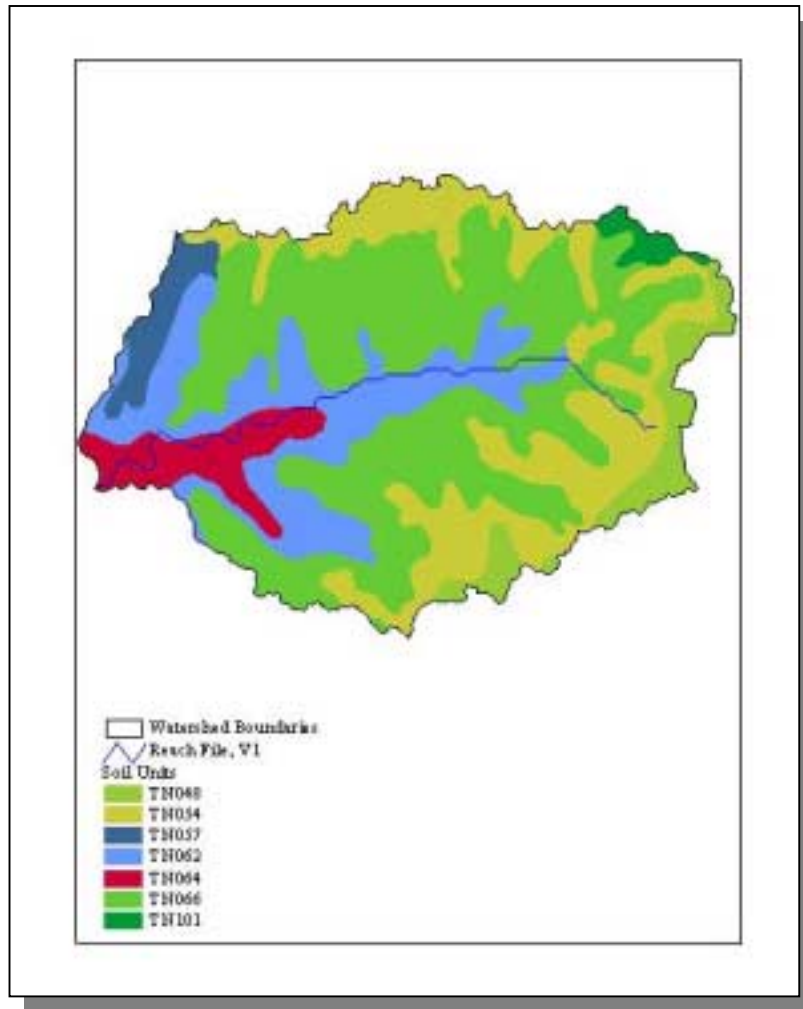


Figure 4-4. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203010.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN054	0.00	C	3.04	4.84	Loam	0.32
TN057	0.00	C	1.14	5.01	Clayey Loam	0.33
TN062	0.00	C	0.98	4.40	Clayey Loam	0.26
TN064	7.00	C	1.19	5.82	Silty Loam	0.37
TN066	0.00	B	2.62	4.75	Loam	0.28
TN101	0.00	B	1.71	5.39	Loam	0.35

Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203010. More details are provided in Stones-Appendix IV.

	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Cannon	10,467	12,011	25.9	2,710	3,110	14.8

Table 4-3. Population Estimates in Subwatershed 05130203010.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Woodbury	Cannon	2,287	1,034	1,018	16	0

Table 4-4. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 05130203010.

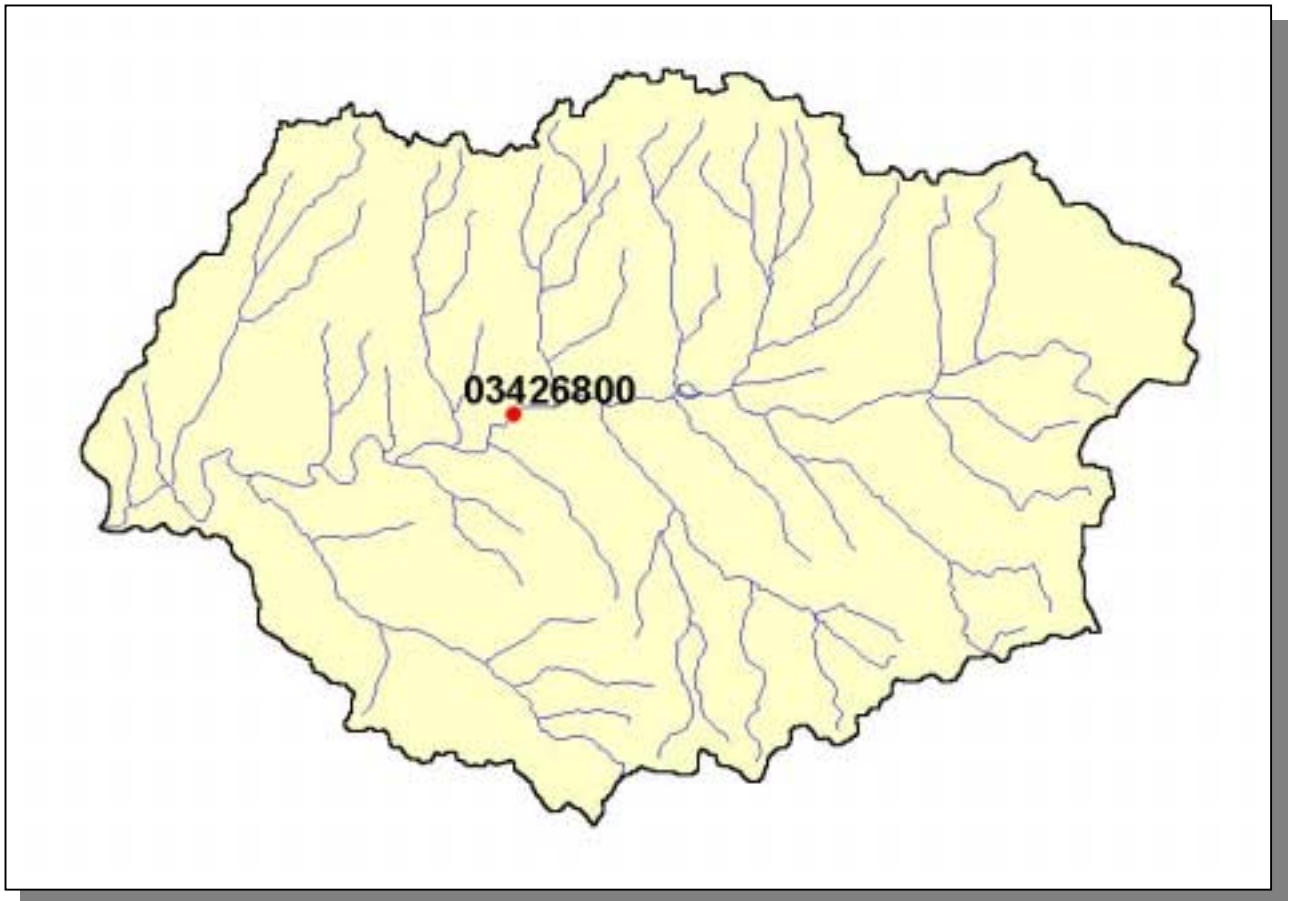


Figure 4-5. Location of Historical Streamflow Data Collection Sites in Subwatershed 05130203010. More information is provided in Stones-Appendix IV.

4.2.A.ii Point Source Contributions.



Figure 4-6. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203010. More information, including the names of facilities, is provided in Stones-Appendix IV.

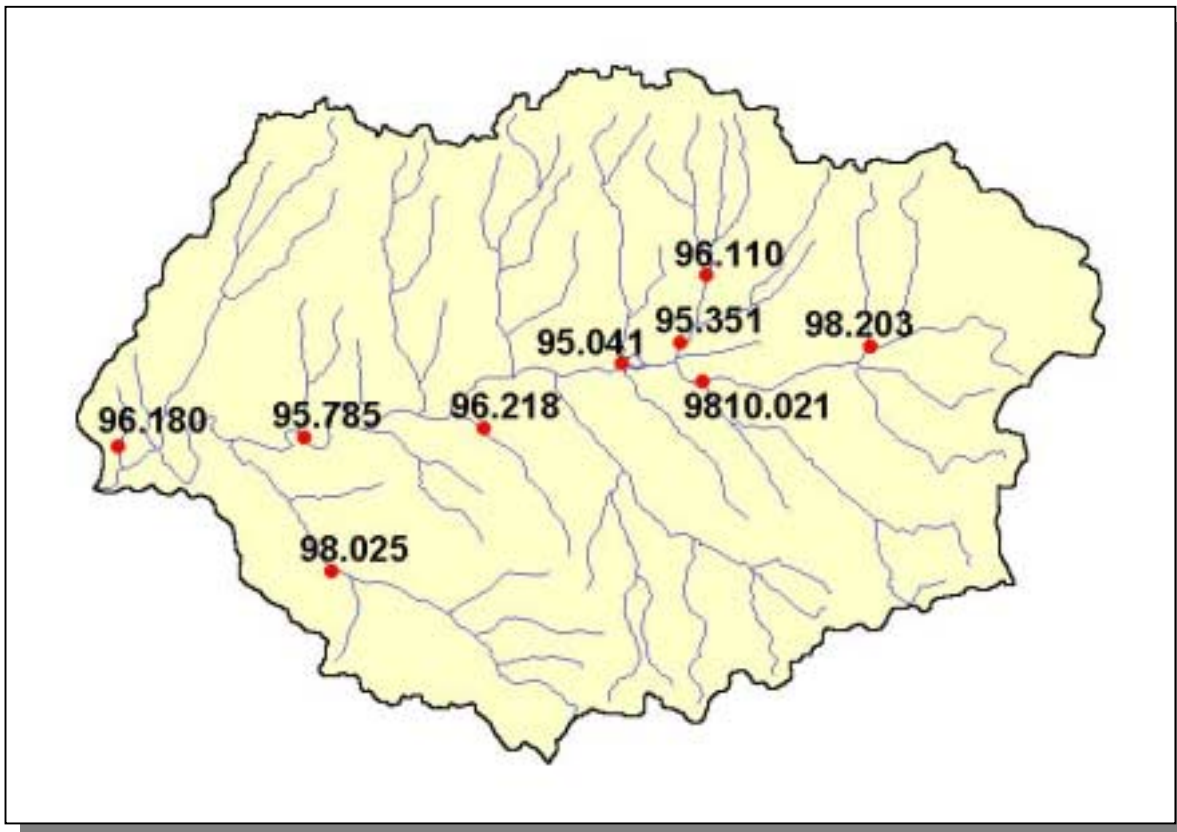


Figure 4-7. Location of ARAP Sites (Individual Permits) in Subwatershed 05130203010.
More information is provided in Stones-Appendix IV.

4.2.A.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
2,307	5,152	285	10	1,074	35

Table 4-5. Summary of Livestock Count Estimates in Subwatershed 05130203010.
According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cannon	88.5	88.5	1.7	7.1

Table 4-6. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 05130203010.

CROPS	TONS/ACRE/YEAR
Corn (Row Crops)	7.71
Soybeans (Row Crops)	3.09
Wheat (Close Grown Cropland)	3.24
Grass (Hayland)	0.61
Legume Grass (Hayland)	0.44
Grass (Pastureland)	0.32
Legume (Pastureland)	0.37
Grass, Forbs, Legumes (Mixed (Pasture)	0.82
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	1.13

Table 4-7. Annual Estimated Total Soil Loss in Subwatershed 05130203010.

4.2.B. 05130203020.



Figure 4-8. Location of Subwatershed 05130203020. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.B.i. General Description.

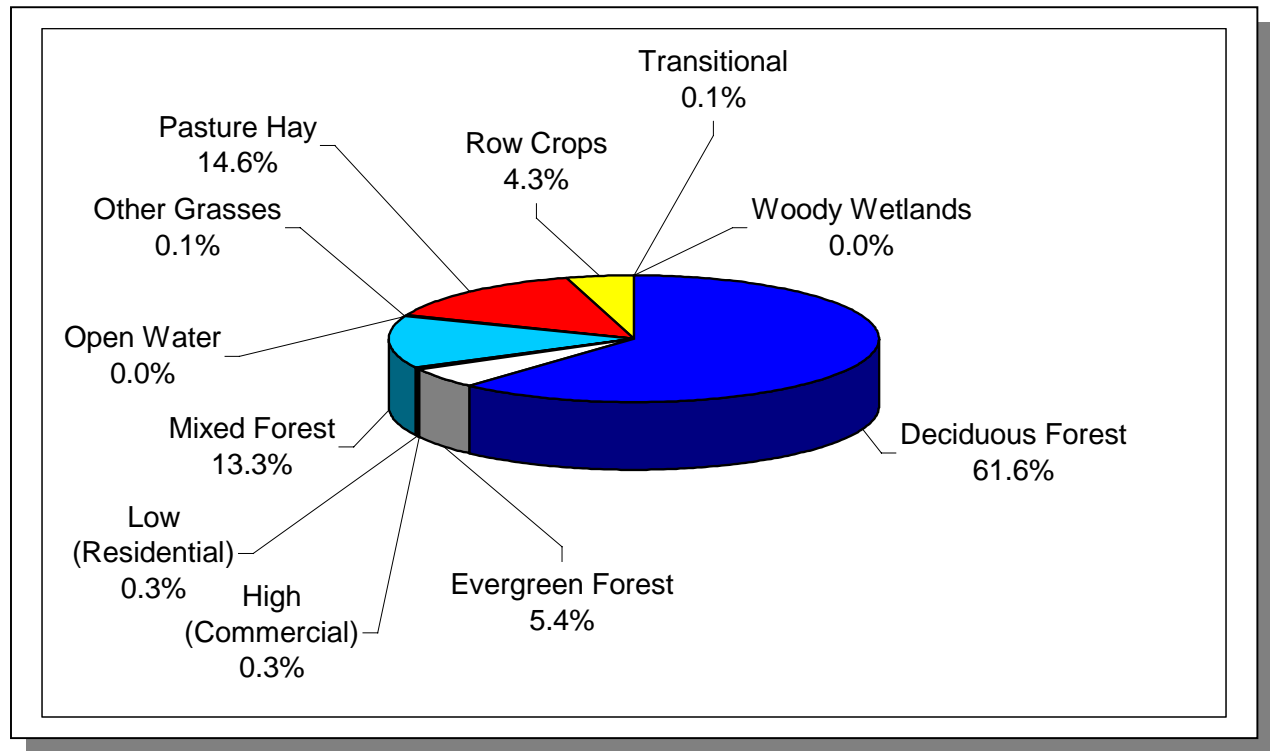


Figure 4-9. Land Use Distribution in Subwatershed 05130203020. More information is provided in Stones-Appendix IV.

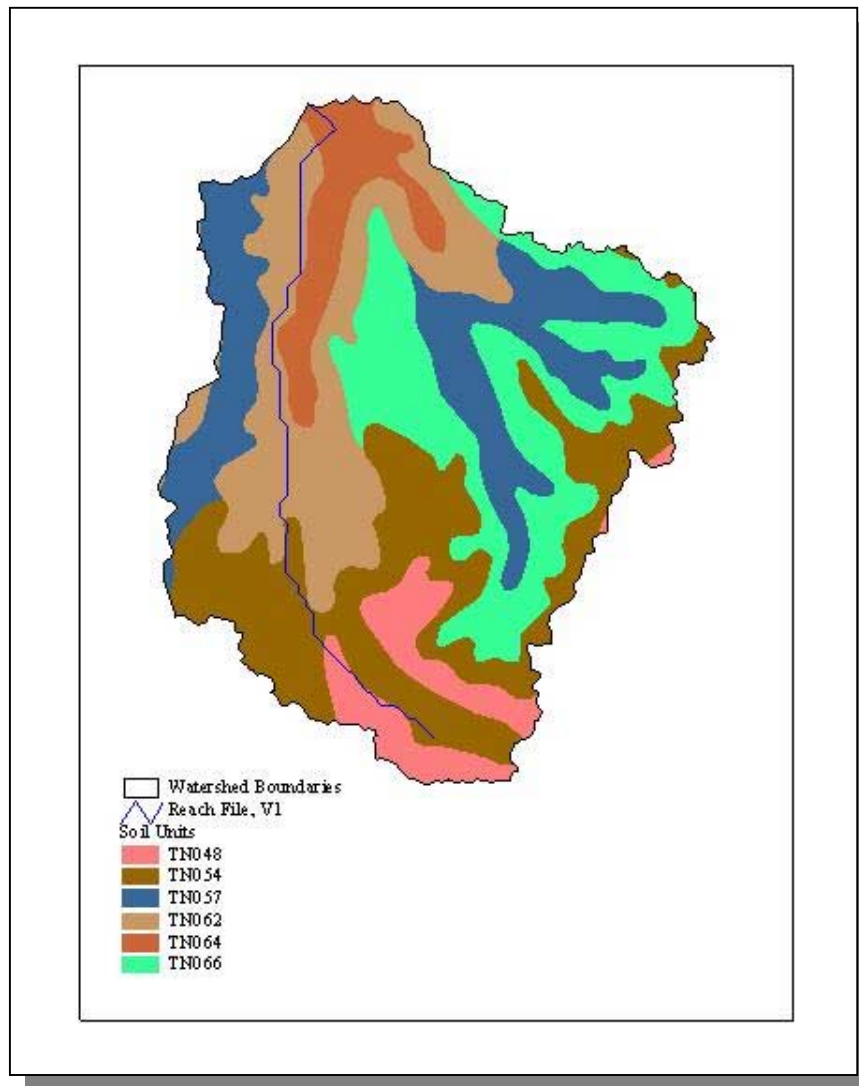


Figure 4-10. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203020.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN054	0.00	C	3.04	4.84	Loam	0.32
TN057	0.00	C	1.14	5.01	Clay Loam	0.33
TN062	0.00	C	0.98	4.40	Clay Loam	0.26
TN064	7.00	C	1.19	5.82	Silty Loam	0.37
TN066	0.00	B	2.62	4.75	Loam	0.28

Table 4-8. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203020. More information is provided in Stones-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Cannon	10,467	12,011	18.59	1,946	2,233	14.7
Coffee	40,339	45,347	0.94	380	427	12.4
Rutherford	118,570	159,987	0.26	307	414	34.9
Totals	169,376	217,345		2,633	3,074	16.7

Table 4-9. Population Estimates in Subwatershed 05130203020.



Figure 4-11. Location of STORET Monitoring Site in Subwatershed 05130203020. More information is provided in Stones-Appendix IV.

4.2.B.ii. Point Source Contributions.



Figure 4-12. Location of Active Mining Sites in Subwatershed 05130203020. More information, including the names of facilities, is provided in Stones-Appendix IV.

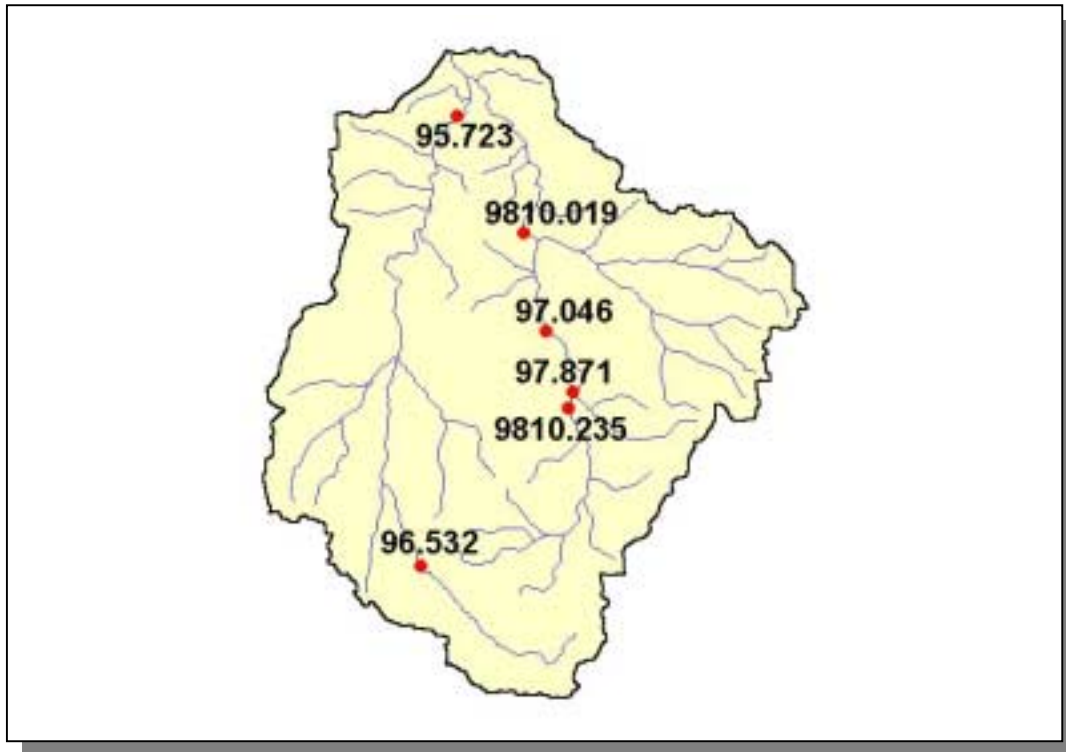


Figure 4-13. Location of ARAP Sites (Individual Permits) in Subwatershed 05130203020.
 More information is provided in Stones-Appendix IV.

4.2.B.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
1,456	3,275	188	6	18,774	654	23

Table 4-10. Summary of Livestock Count Estimates in Subwatershed 05130203020.
 According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cannon	88.5	88.5	1.7	7.1
Coffee	114.4	114.2	2.8	12.7
Rutherford	155.7	155.7	0.4	0.9
Total	358.6	358.6	4.9	20.7

Table 4-11. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 05130203020.

CROPS	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Berry (Horticultural)	0.47
Corn (Row Crops)	7.82
Soybeans (Row Crops)	4.09
Cotton (Row Crops)	4.24
Grass (Hayland)	0.61
Legume (Hayland)	0.32
Legume Grass (Hayland)	0.42
Grass (Pastureland)	0.43
Legume (Pastureland)	0.36
Grass, Forbs, Legumes (Mixed Pasture)	0.77
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	1.03
Conservation Reserve Program Land	0.17
Wheat (Close Grown Cropland)	4.08
Other Vegetable and Truck Crop	4.37
Other Cropland not Planted	6.68

Table 4-12. Annual Estimated Total Soil Loss in Subwatershed 05130203020.

4.2.C. 05130203030.

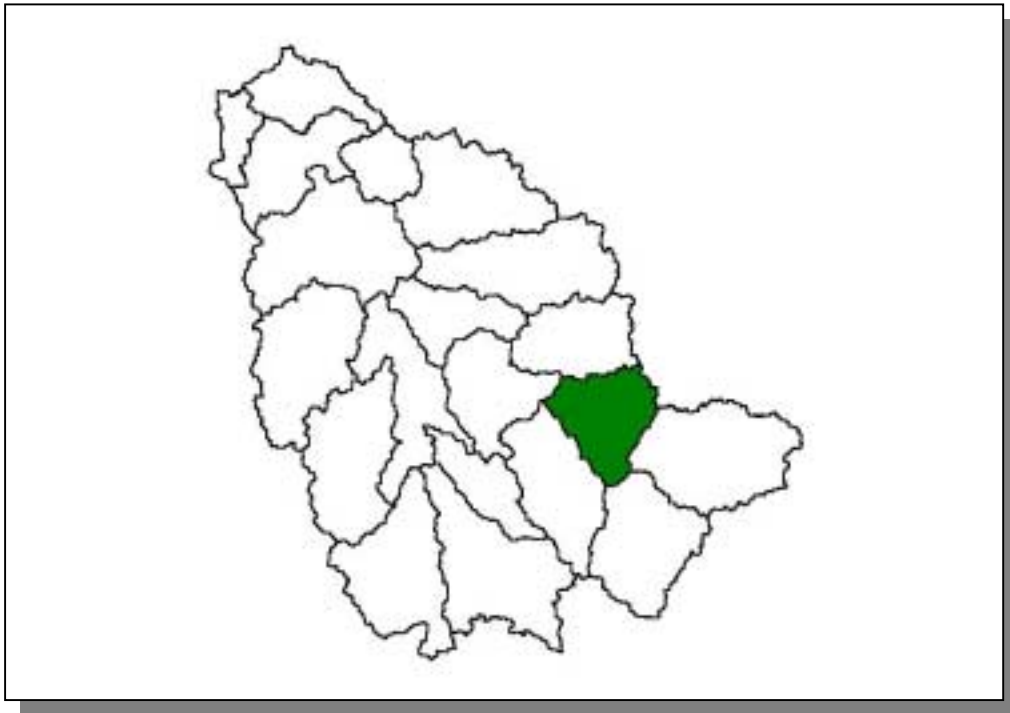


Figure 4-14. Location of Subwatershed 05130203030. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.C.i. General Description.

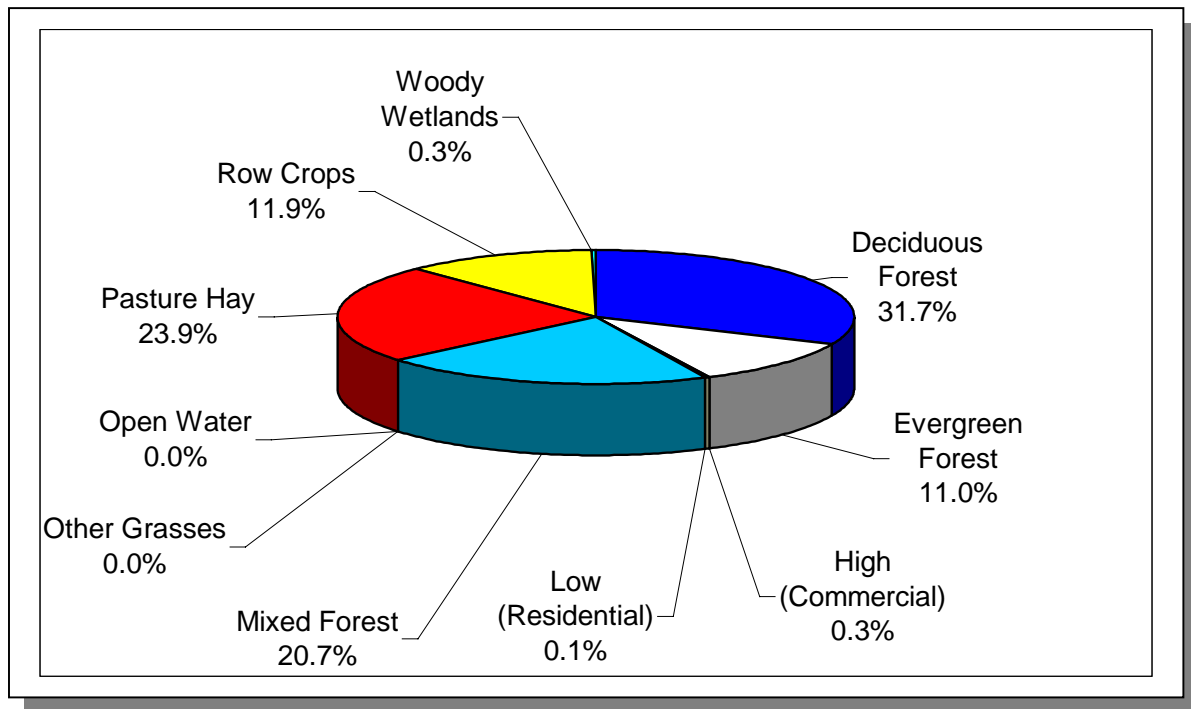


Figure 4-15. Land Use Distribution in Subwatershed 05130203030. More information is provided in Stones-Appendix IV.

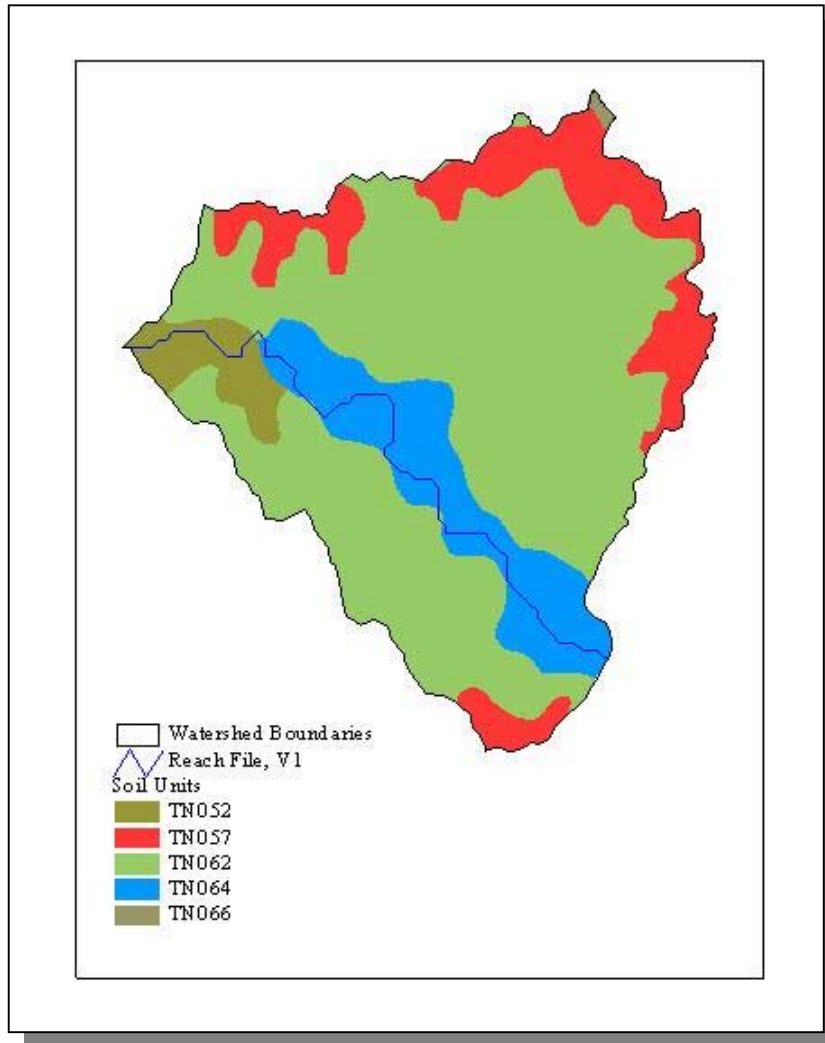


Figure 4-16. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203030.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN052	0.00	B	1.23	5.46	Silty Loam	0.39
TN057	0.00	C	1.14	5.01	Clay Loam	0.33
TN062	0.00	C	0.98	4.40	Clay Loam	0.26
TN064	7.00	C	1.19	5.82	Silty Loam	0.37
TN066	0.00	B	2.62	4.75	Loam	0.28

Table 4-13. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203030. More information is provided in Stones-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Cannon	10467	12011	4.36	456	524	14.9
Rutherford	118570	159987	4.59	5448	7351	34.9
Totals	129037	171998		5904	7875	33.4

Table 4-14. Population Estimates in Subwatershed 05130203030.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Nashville-Davidson Co.	Davidson	488,518	219,521	203,640	15,576	305
Pegram	Cheatham	1,371	535	20	510	5
Total		489,889	220,056	203,660	16,086	310

Table 4-15. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 05130203030.

4.2.C.ii. Point Source Contributions.

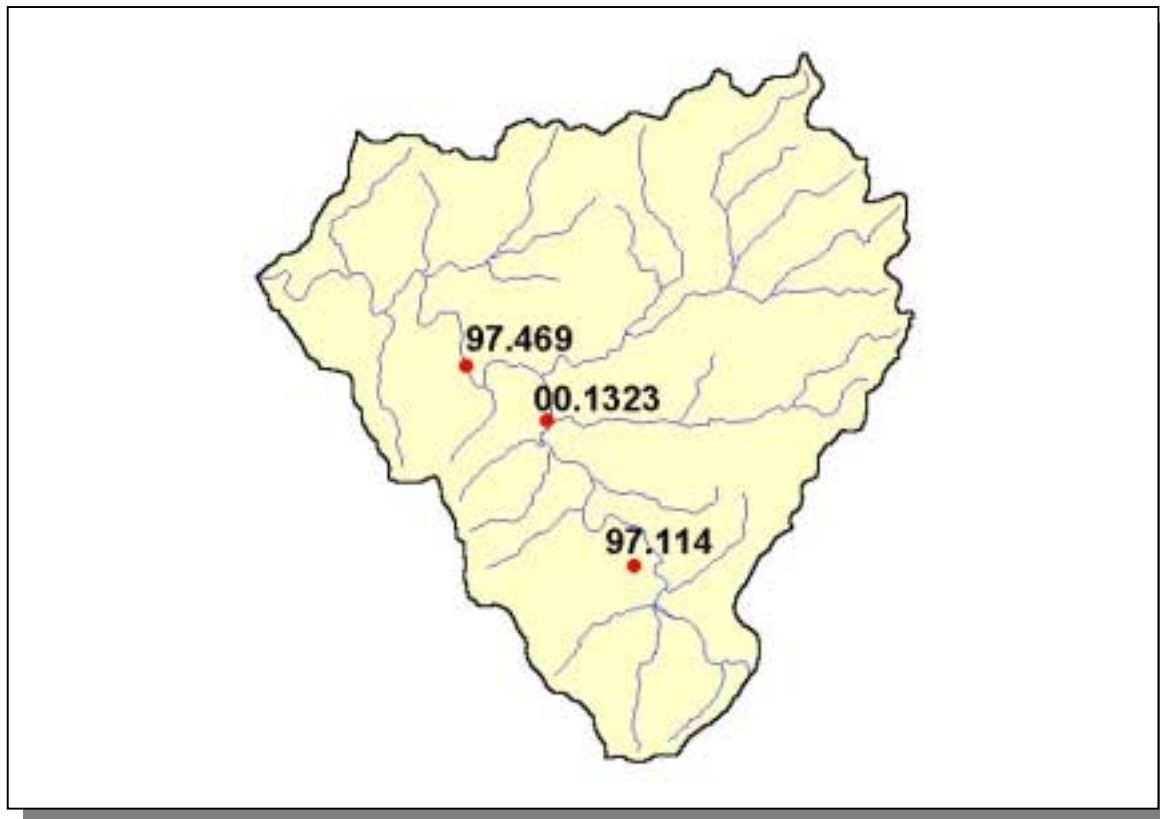


Figure 4-17. Location of ARAP Sites (Individual Permits) in Subwatershed 05130203030. More information is provided in Stones-Appendix IV.

4.2.C.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
1,441	3,091	183	5	292	27

Table 4-16. Summary of Livestock Count Estimates in Subwatershed 05130203030.
According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cheatham	118.2	118.2	2.3	8.4
Davidson	108.7	108.1	2.3	9.7
Williamson	142.0	142	1	3.3
Total	368.9	368.3	5.6	21.4

Table 4-17. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 05130203030.

CROPS	TONS/ACRE/YEAR
Soybeans (Row Crops)	9.50
Grass (Hayland)	0.14
Legume (Hayland)	0.84
Grass (Pastureland)	0.53
Grass, Forbs, Legumes (Mixed Pasture)	0.53
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.31
Corn (Row Crops)	6.14
Other Cropland Not Planted	5.05
Legume Grass (Hayland)	0.18
All Other Close Grown Cropland	2.26
Tobacco (Row Crops)	6.75
Wheat (Close Grown Cropland)	1.27
Other Land in Farms	0.12
Conservation Reserve Program Land	0.12
Legume (Pastureland)	0.33

Table 4-18. Annual Estimated Total Soil Loss in Subwatershed 05130203030.

4.2.D. 05130203040.

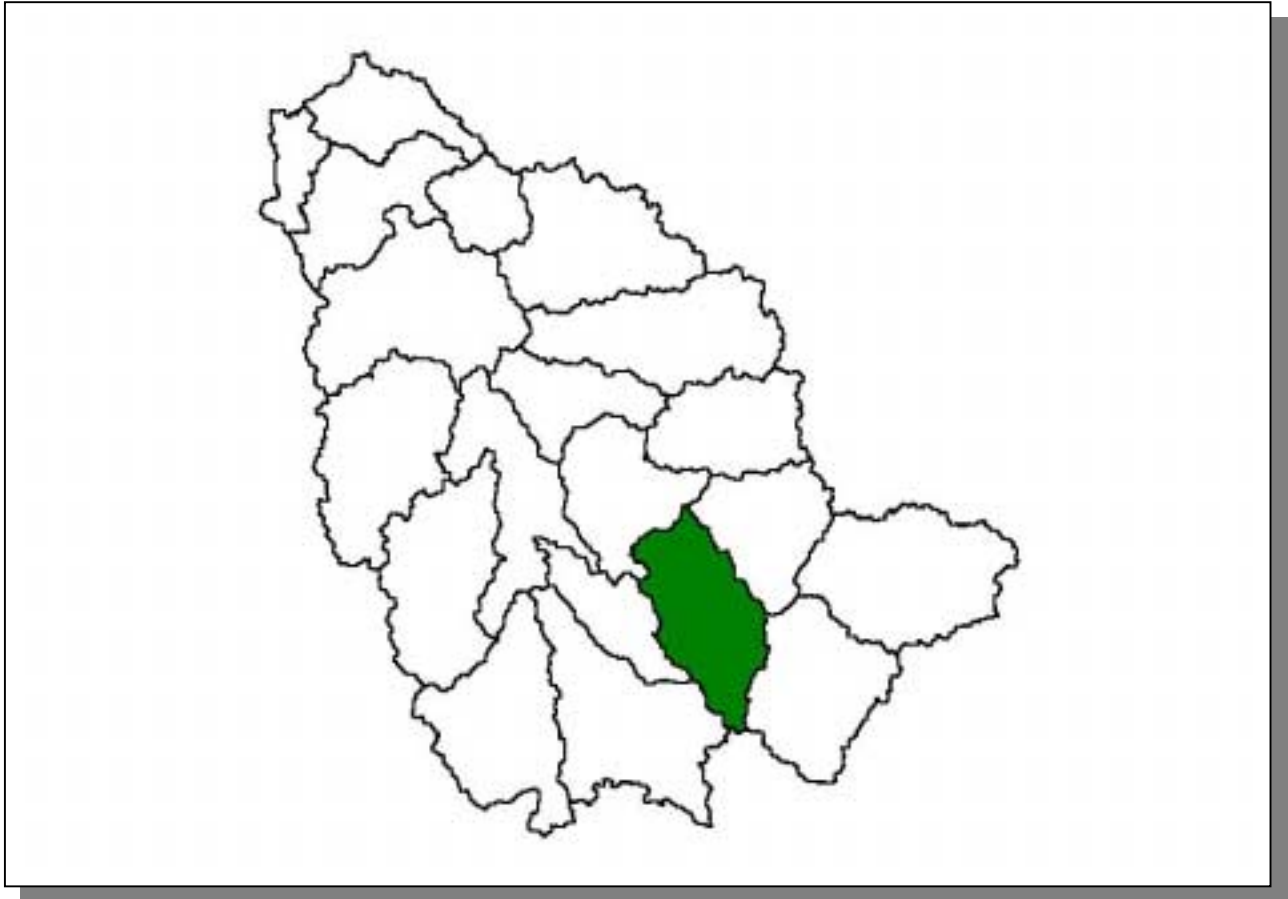


Figure 4-18. Location of Subwatershed 05130203040. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.D.i. General Description.

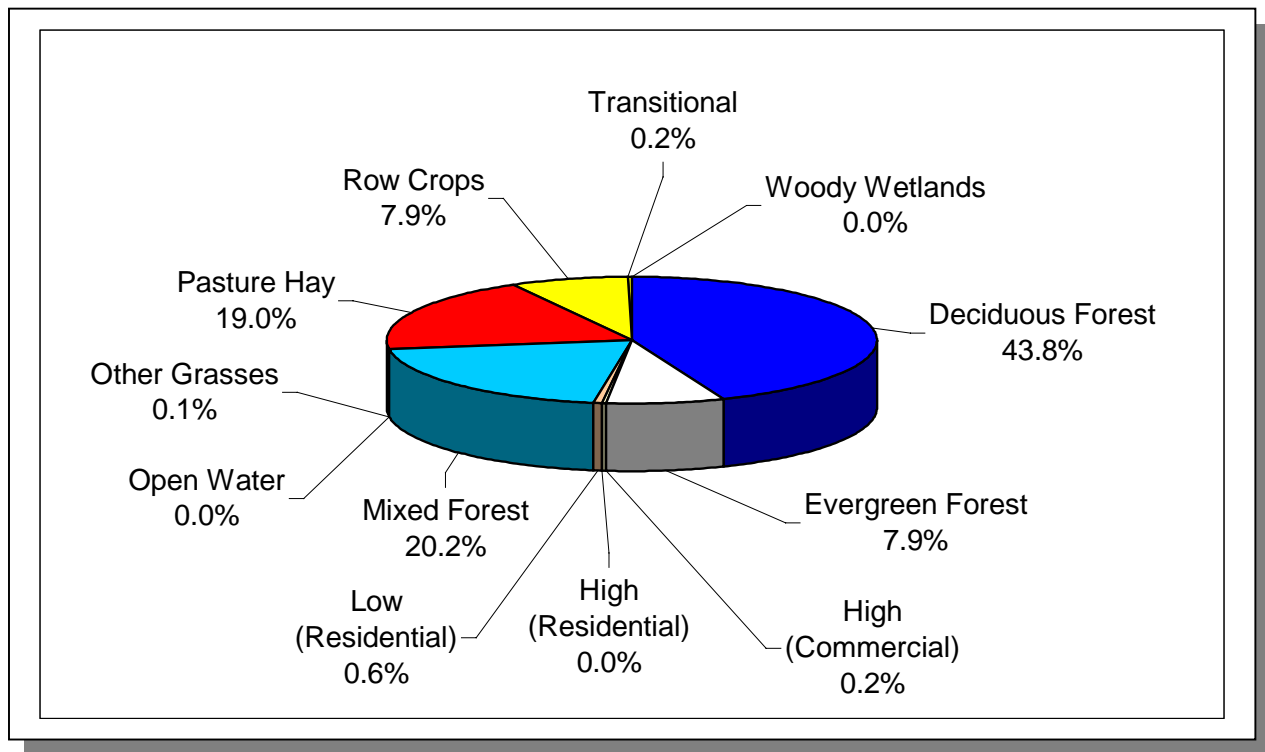


Figure 4-19. Land Use Distribution in Subwatershed 05130203040. More information is provided in Stones-Appendix IV.

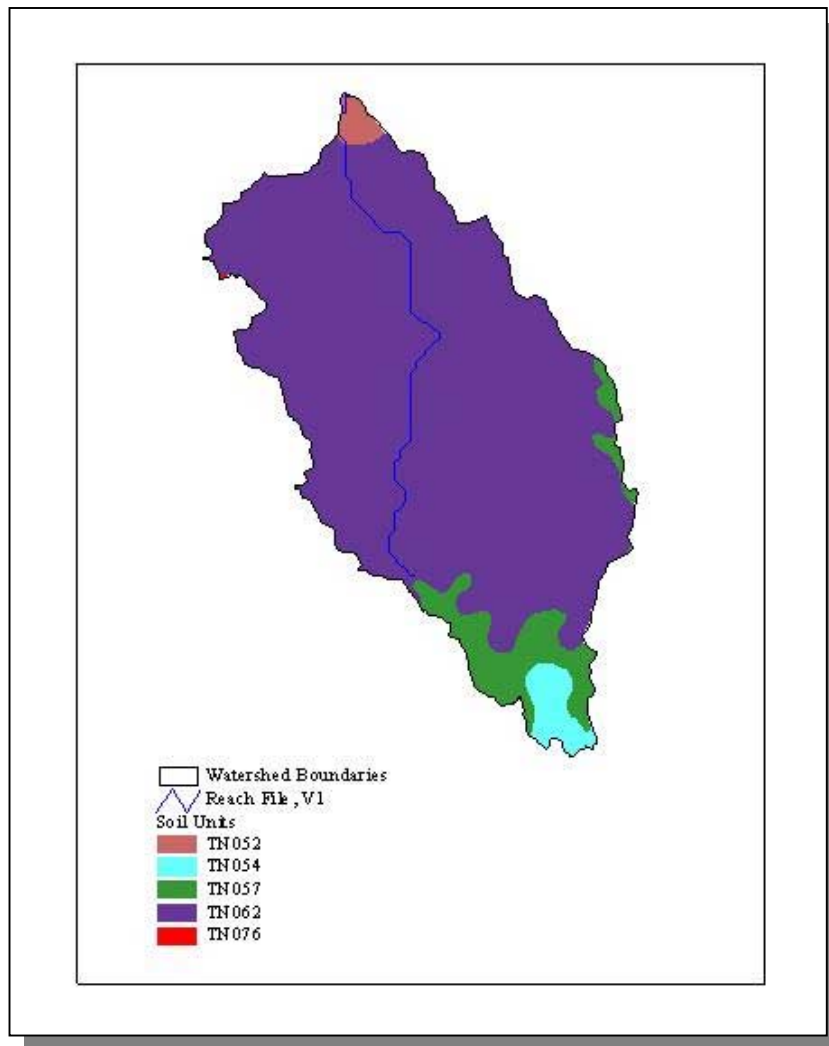


Figure 4-20. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203040.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN052	0.00	B	1.23	5.46	Silty Loam	0.39
TN054	0.00	C	3.04	4.84	Loam	0.32
TN057	0.00	C	1.14	5.01	Clay Loam	0.33
TN062	0.00	C	0.98	4.40	Clay Loam	0.26
TN076	28.00	C	0.73	6.26	Silty Clay Loam	0.33

Table 4-19. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203040. More information is provided in Stones-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Cannon	10,467	12,011	0.06	6	7	16.7
Coffee	40,339	45,347	0.09	35	40	14.3
Rutherford	118,570	159,987	7.88	9,344	12,607	34.9
Totals	169,376	217,345		9,385	12,654	34.8

Table 4-20. Population estimates in Subwatershed 05130203040.

4.2.D.ii. Point Source Contributions.

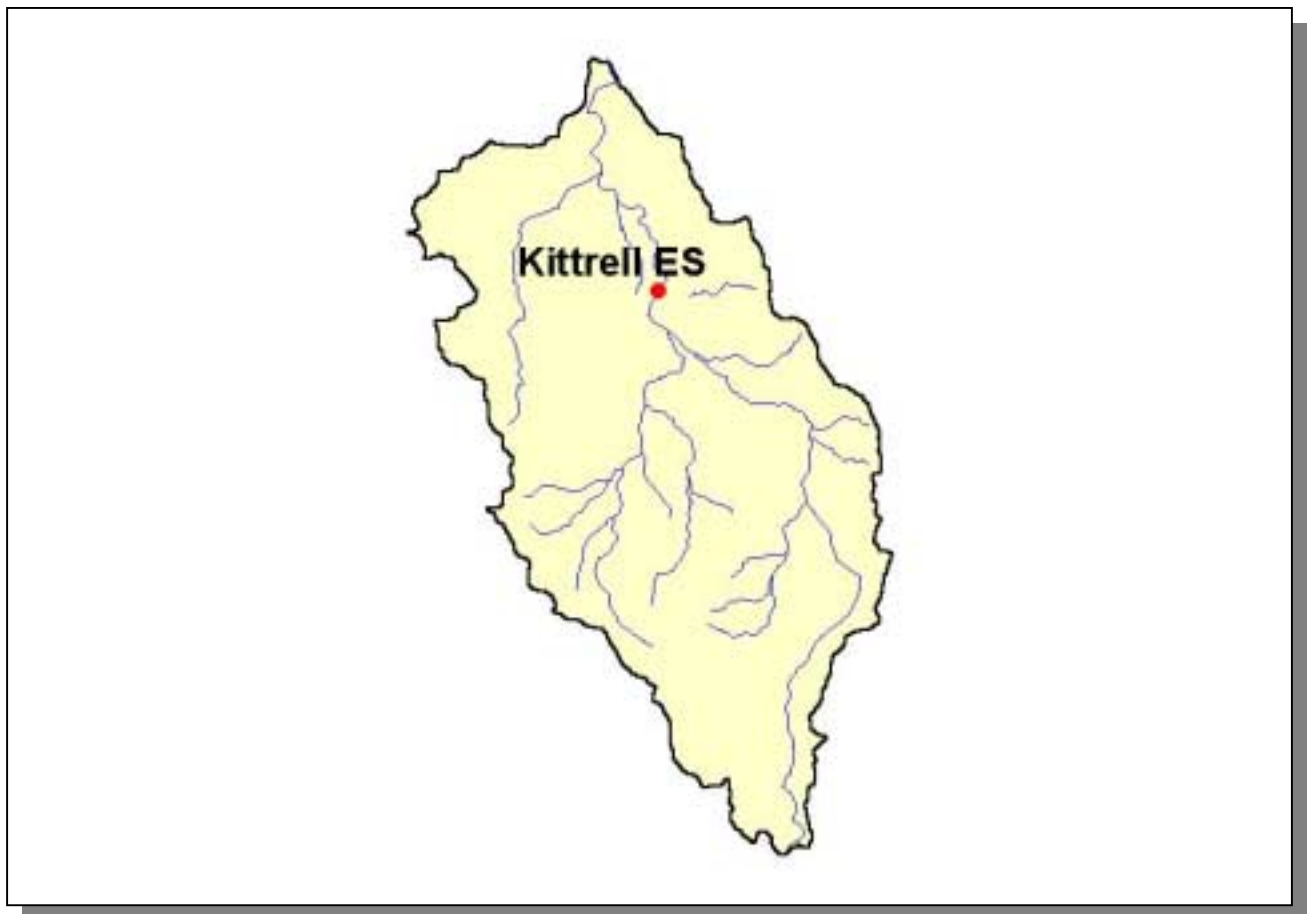


Figure 4-21. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203040. More information, including the names of facilities, is provided in Stones-Appendix IV.

4.2.D.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List.

There is one NPDES facility discharging to water bodies listed on the 1998 303(d) list in Subwatershed 05130203040:

- TN 0067253 discharges to Cripple Creek @ RM 5.2



Figure 4-22. Location of NPDES Discharger to Water Bodies Listed on the 1998 303(d) List in Subwatershed 05130203040. The names of facilities are provided in Stones-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QDESIGN
TN0067253	0	0	0	0.019

Table 4-21. Receiving Stream Flow Information for NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 05130203040. Data are in million gallons per day (MGD). Data were calculated using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

PERMIT #	CBOD ₅	NH ₃	FECAL
TN0067253	X	X	X

Table 4-22. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 05130203040.

4.2.D.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
1,296	2,716	168	<5	977	64	27

Table 4-23. Summary of Livestock Count Estimates in Subwatershed 05130203040. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cannon	88.5	88.5	1.7	7.1
Coffee	114.4	114.2	2.8	12.7
Rutherford	155.7	155.7	0.4	0.9

Table 4-24. Forest Acreage and Average Annual removal rates (1987-1994) in Subwatershed 05130203040.

CROPS	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Berry (Horticultural)	0.47
Corn (Row Crops)	3.68
Soybeans (Row Crops)	2.92
Cotton (Row Crops)	4.78
Grass (Hayland)	0.21
Legume (Hayland)	0.32
Legume Grass (Hayland)	0.49
Grass (Pastureland)	0.89
Legume (Pastureland)	0.12
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.47
Conservation Reserve Program Land	0.28
Wheat (Close Grown Cropland)	10.98
Other Vegetable and Truck Crop	4.37
Other Cropland not Planted	6.68

Table 4-25. Annual Soil Loss in Subwatershed 05130203040.

4.2.E. 05130203050.

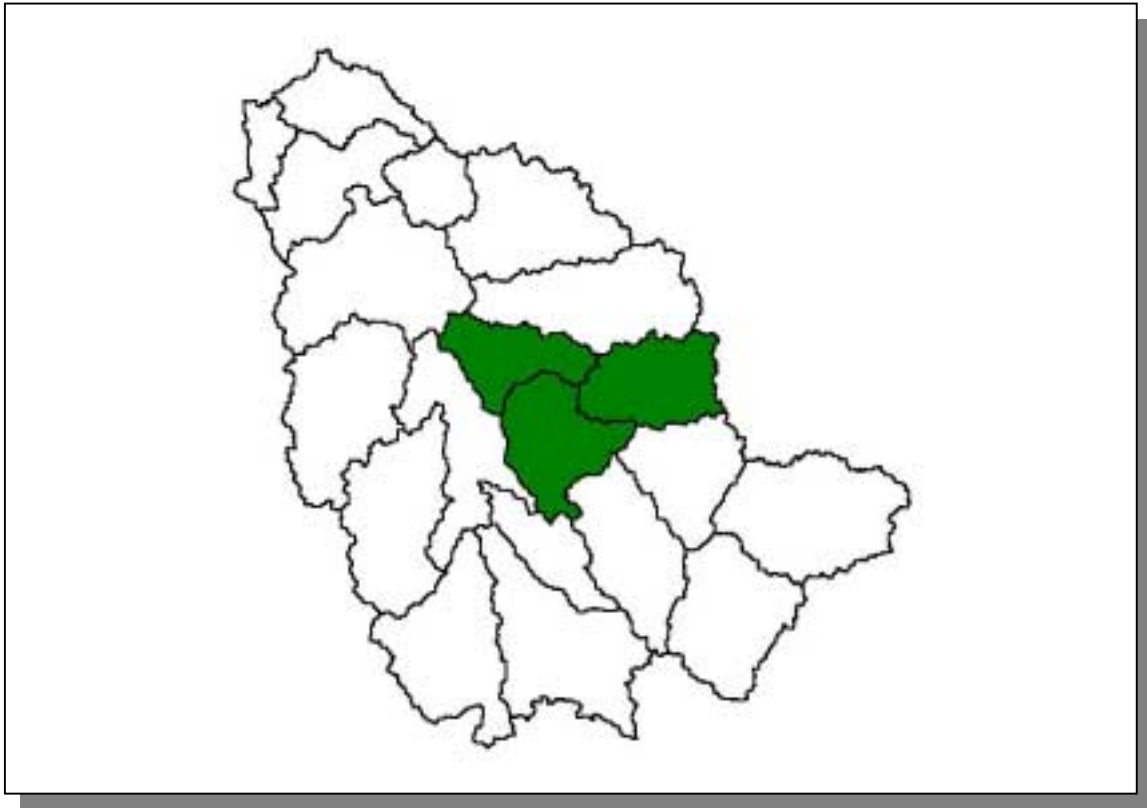


Figure 4-23. Location of Subwatershed 05130203050. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.E.i. General Description.

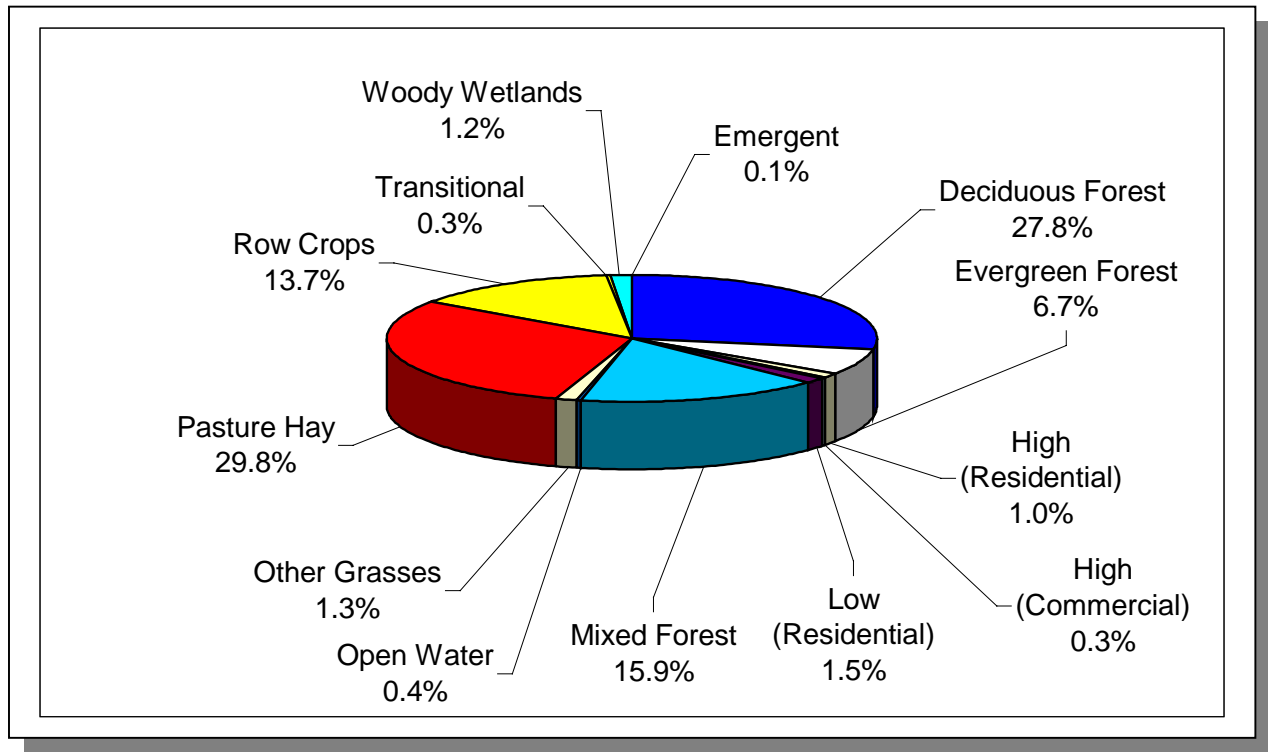


Figure 4-24. Land Use Distribution in Subwatershed 05130203050. More information is provided in Stones-Appendix IV.

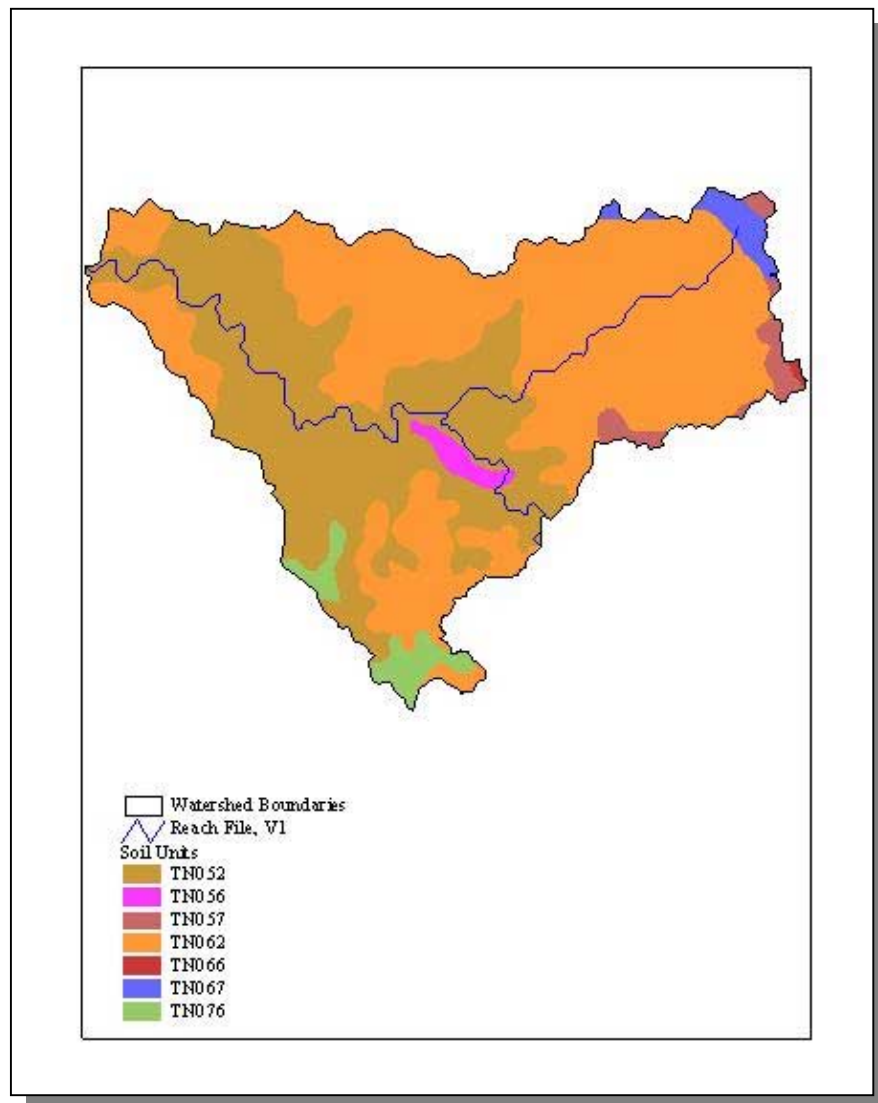


Figure 4-25. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203050.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATE SOIL TEXTURE	SOIL ERODIBILITY
TN052	0.00	B	1.23	5.46	Silty Loam	0.39
TN056	0.00	C	2.99	5.29	Sandy Clay Loam	0.25
TN057	0.00	C	1.14	5.01	Clay Loam	0.33
TN062	0.00	C	0.98	4.40	Clay Loam	0.26
TN066	0.00	B	2.62	4.75	Loam	0.28
TN067	2.00	C	2.69	5.51	Silty Loam	0.35
TN076	28.00	C	0.73	6.26	Silty Clay Loam	0.33

Table 4-26. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203050. More information is provided in Stones-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Cannon	10,467	12,011	0	0	0	0
Rutherford	118,570	159,987	17.07	20,238	27,307	34.9
Wilson	67,675	81,327	1.33	900	1,081	20.1
Totals	196,712	253,325		21,138	28,388	34.3

Table 4-27. Population estimates in Subwatershed 05130203050.

				Number of Housing Units		
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Murfreesboro	Rutherford	44,922	18,708	17,845	855	8

Table 4-28. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 05130203050.

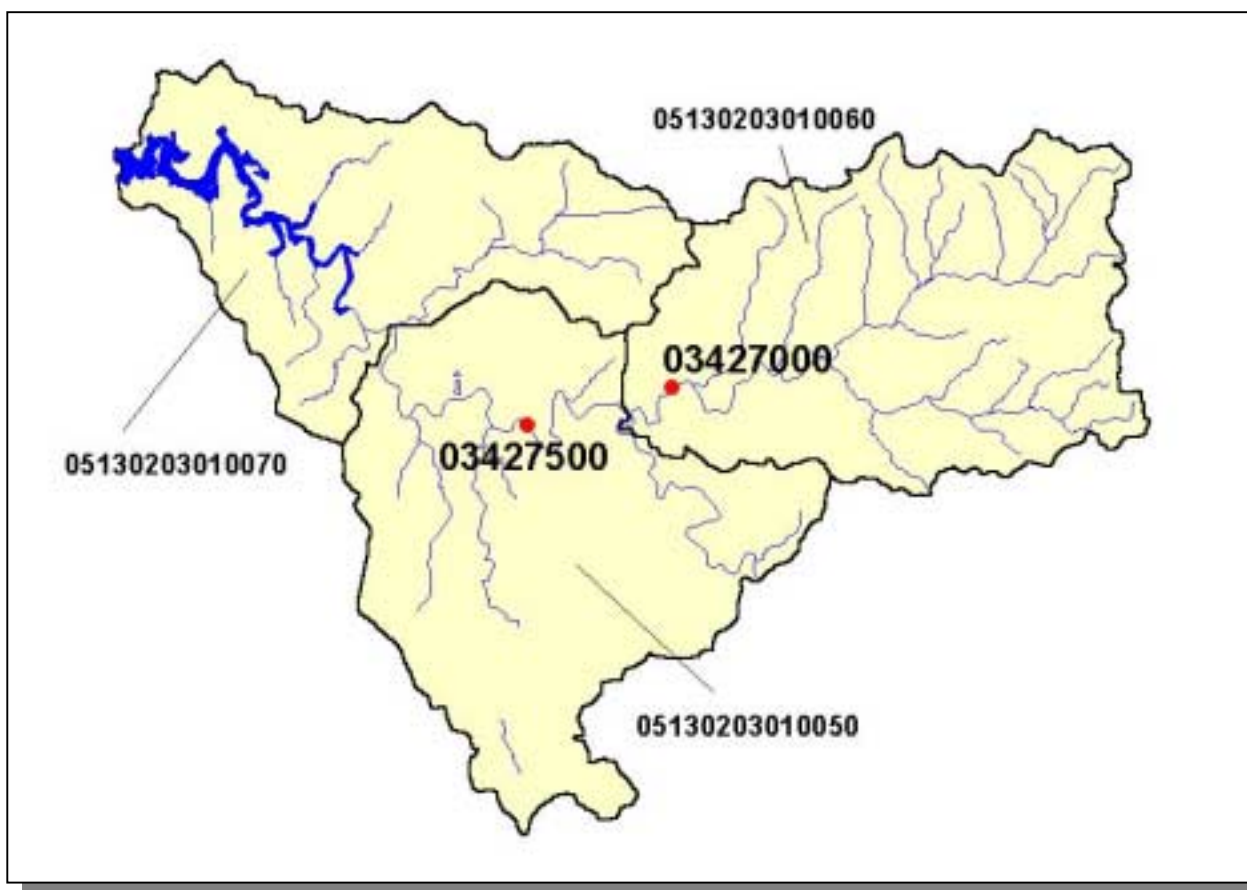


Figure 4-26. Location of Historical Streamflow Data Collection Sites in Subwatershed 05130203050. Subwatershed 05130203010050, 05130203010060, and 05130203010070 boundaries are shown for reference. More information is provided in Stones-Appendix IV.



Figure 4-27. Location of STORET Monitoring Site in Subwatershed 05130203050. Subwatershed 05130203010050, 05130203010060, and 05130203010070 boundaries are shown for reference. More information is provided in Stones-Appendix IV.

4.2.E.ii. Point Source Contributions.



Figure 4-28. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203050. Subwatershed 05130203010050, 05130203010060, and 05130203010070 boundaries are shown for reference. More information, including the names of facilities, is provided in Stones-Appendix IV.



Figure 4-29. Location of Active Mining Sites in Subwatershed 05130203050. Subwatershed 05130203010050, 05130203010060, and 05130203010070 boundaries are shown for reference. More information, including the names of facilities, is provided in Stones-Appendix IV.

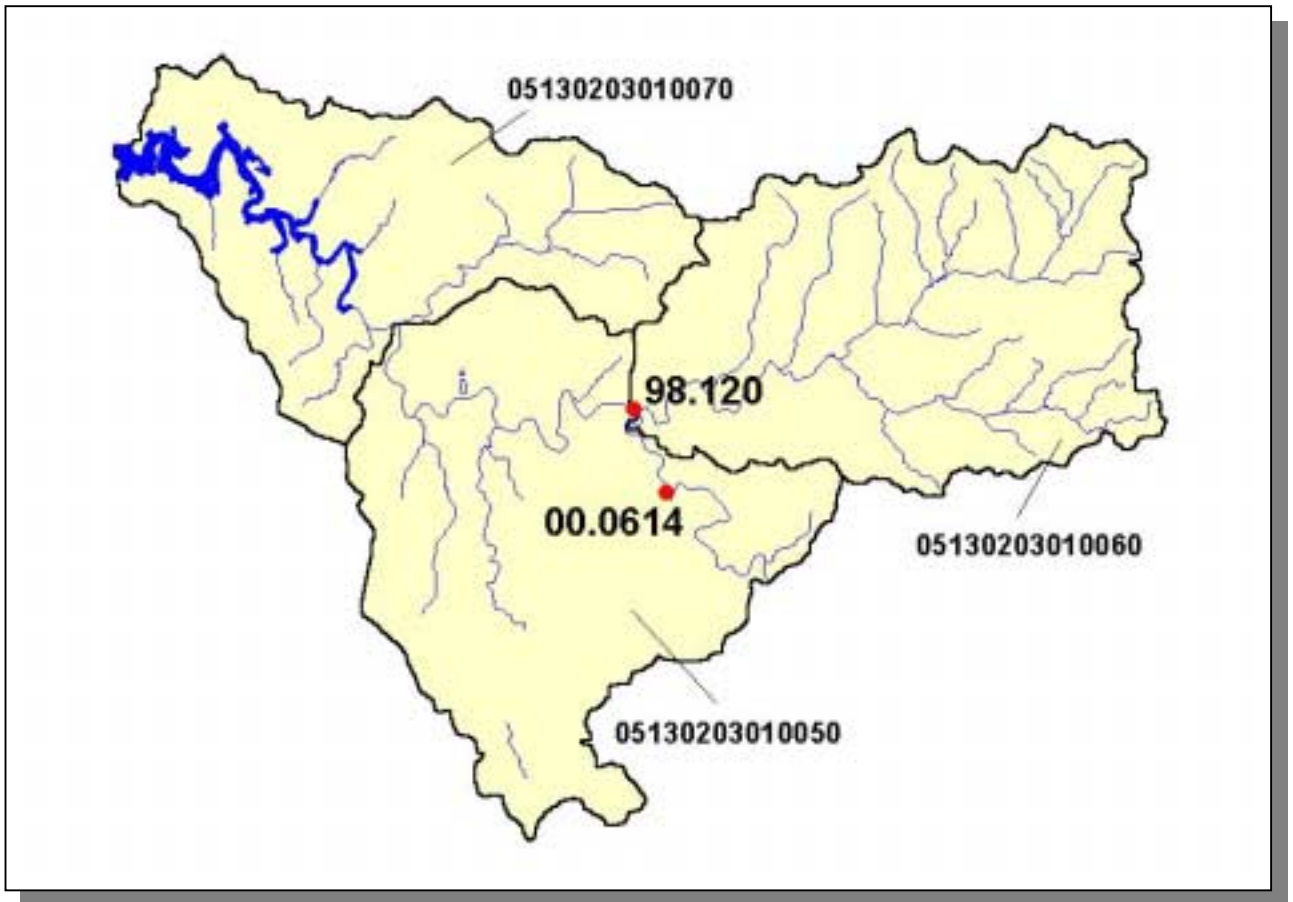


Figure 4-30. Location of Permitted ARAP sites in Subwatershed 05130203050. Subwatershed 05130203010050, 05130203010060, and 05130203010070 boundaries are shown for reference. More information is provided in Stones-Appendix IV.

4.2.E.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
4,801	9,947	583	16	242	100

Table 4-29. Summary of Livestock Count Estimates in Subwatershed 05130203050. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cannon	88.5	88.5	1.7	7.1
Rutherford	155.7	155.7	0.4	0.9
Wilson	98.1	97.0	1.7	6.8
Total	342.3	341.2	3.8	14.8

Table 4-30. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 05130203050.

CROPS	TONS/ACRE/YEAR
Corn (Row Crops)	3.52
Grass (Hayland)	0.22
Grass (Pastureland)	0.86
Grass, Forbs, Legumes (Mixed (Pasture)	0.57
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.46
Non Agricultural Land Use	0.00
Soybeans (Row Crops)	3.08
Tobacco (Row Crops)	19.23
Wheat (Close Grown Cropland)	1.97
Legume Grass (Hayland)	0.48
All Other Close Grown Cropland	2.49
Berry (Horticultural)	0.47
Cotton (Row Crops)	4.79
Legume (Hayland)	0.32
Legume (Pastureland)	0.12
Conservation Reserve Program Land	0.28

Table 4-31. Annual Estimated Soil Loss in Subwatershed 05130203050.

4.2.F. 05130203060



Figure 4-31. Location of Subwatershed 05130203060. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.F.i. General Description.

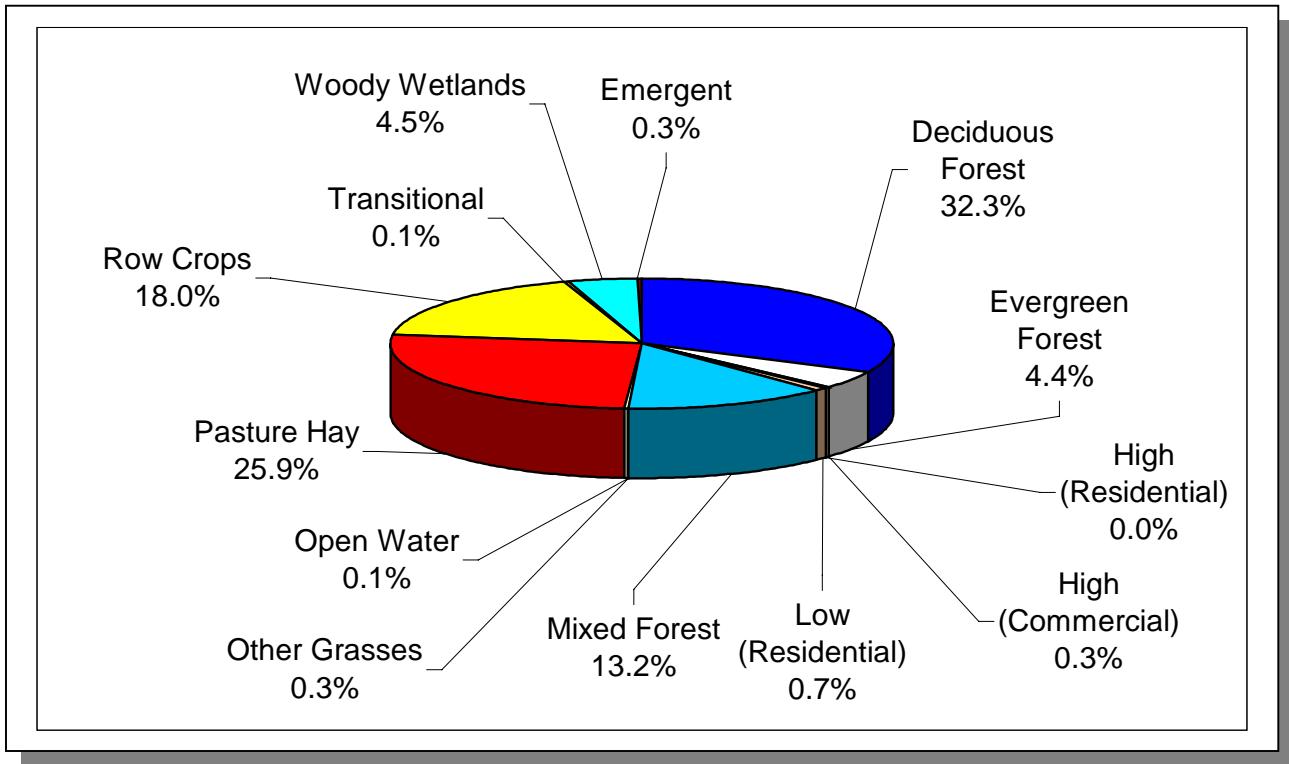


Figure 4-32. Land Use Distribution in Subwatershed 05130203060. More information is provided in Stones-Appendix IV.

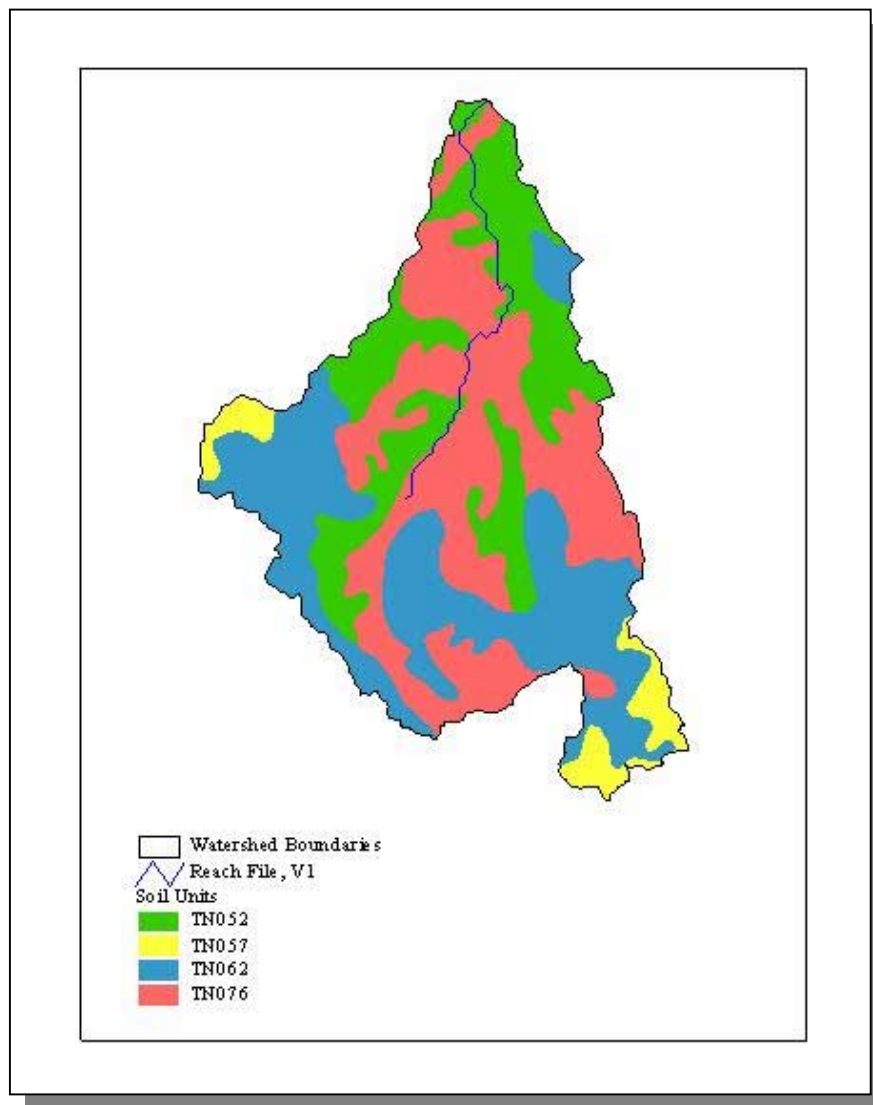


Figure 4-33. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203060.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATE SOIL TEXTURE	SOIL ERODIBILITY
TN052	0.00	B	1.23	5.46	Silty Loam	0.39
TN057	0.00	C	1.14	5.01	Clay Loam	0.33
TN062	0.00	C	0.98	4.40	Clay Loam	0.26
TN076	28.00	C	0.73	6.26	Silty Clayey Loam	0.33

Table 4-32. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203060. More information is provided in Stones-Appendix IV.

	TOTAL COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		PERCENT CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Bedford	30,411	34,203	0.61	185	208	12.4
Rutherford	118,570	159,987	9.24	10,960	14,788	34.9
Totals	148,981	194,190		11,145	14,996	34.6

Table 4-33. Population Estimates in Subwatershed 05130203060.

				NUMBER OF HOUSING UNITS		
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Murfreesboro	Rutherford	44,922	18,708	17,845	855	8

Table 4-34. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 05130203060.



Figure 4-34. Location of STORET Monitoring Site in Subwatershed 05130203060. More information is provided in Stones-Appendix IV.

4.2.F.ii. Point Source Contributions.

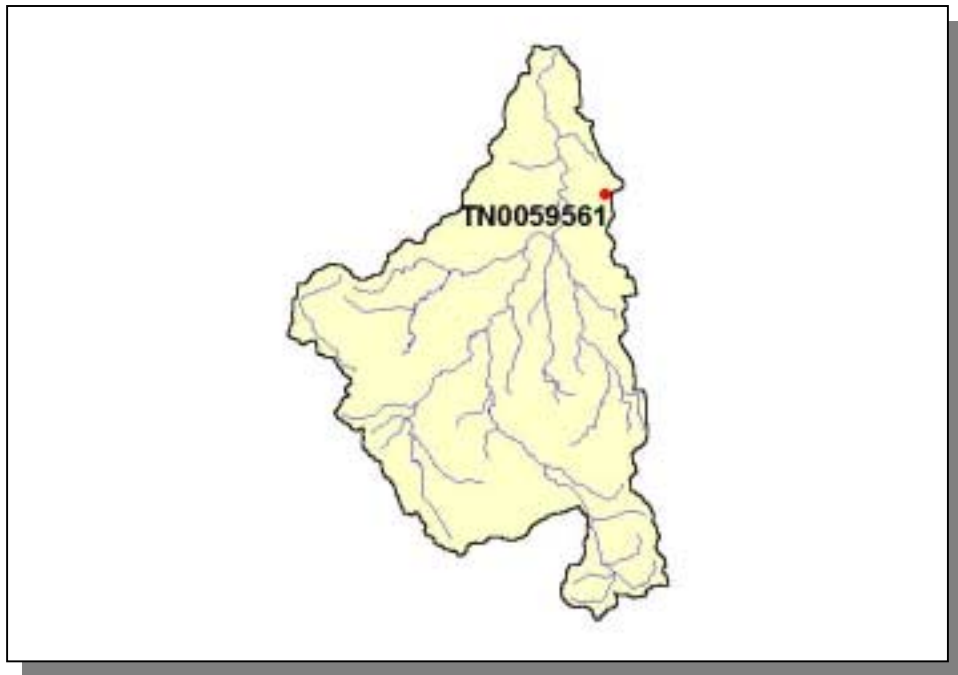


Figure 4-35. Location of Active Mining Sites in Subwatershed 05130203060. More information, including the names of facilities, is provided in Stones-Appendix IV.

4.2.F.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
2,274	4,756	295	8	202,886	132	47

Table 4-35. Summary of Livestock Count Estimates in Subwatershed 05130203060.
According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	Inventory		Removal Rate	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bedford	74.6	74.6	0.5	1.3
Rutherford	155.7	155.7	0.4	0.9
Total	230.3	230.3	0.9	2.2

Table 4-36. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 05130203060.

CROP	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Berry (Horticultural)	0.47
Corn (Row Crops)	3.64
Soybeans (Row Crops)	2.98
Cotton (Row Crops)	4.79
Grass (Hayland)	0.26
Legume (Hayland)	0.32
Legume Grass (Hayland)	0.49
Grass (Pastureland)	0.88
Legume (Pastureland)	0.12
Grass, Forbs, Legumes (Mixed (Pasture)	0.53
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads And Ranch Headquarters	0.45
Conservation Reserve Program L	0.28
Wheat (Close Grown Cropland)	2.22
Summer Fallow (Other Cropland)	4.60

Table 4-37. Annual Estimated Total Soil Loss in Subwatershed 05130203060.

4.2.G. 05130203070.

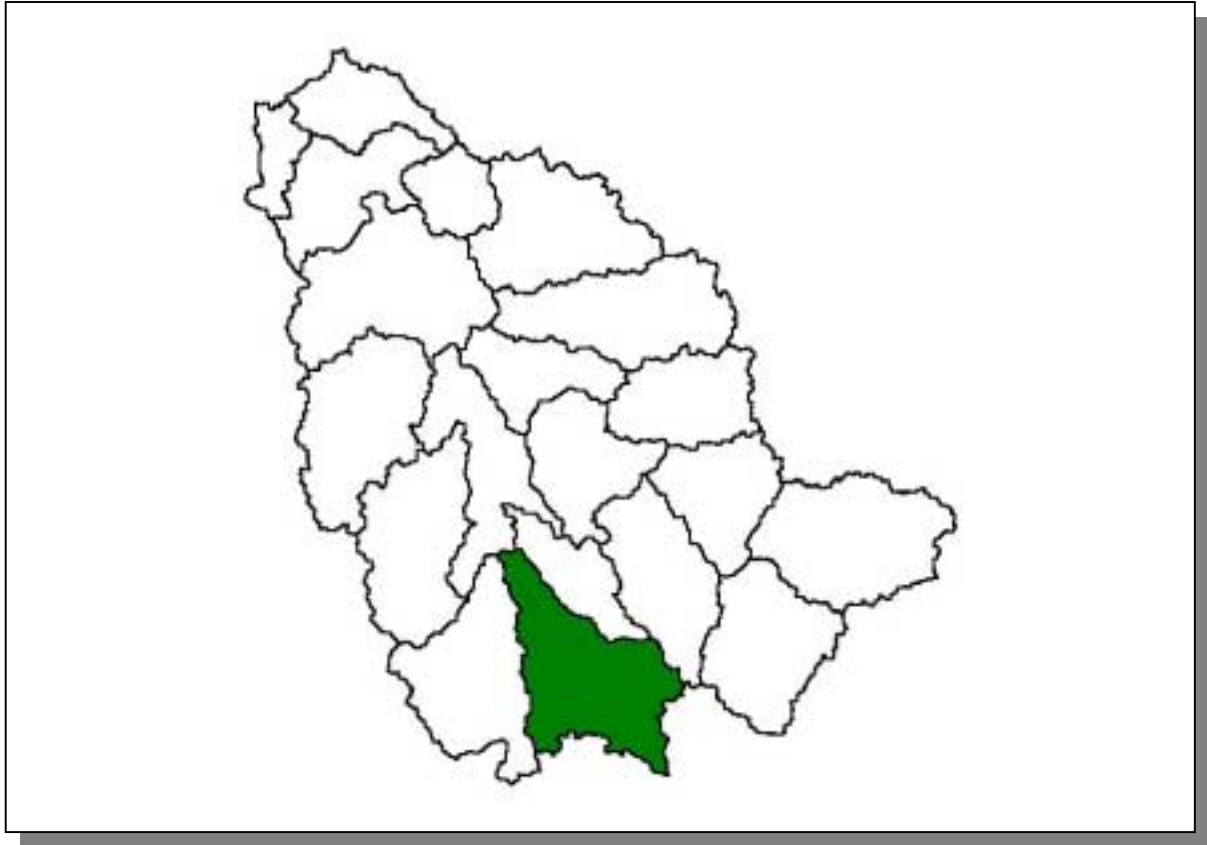


Figure 4-36. Location of Subwatershed 05130203070. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.G.i. General Description.

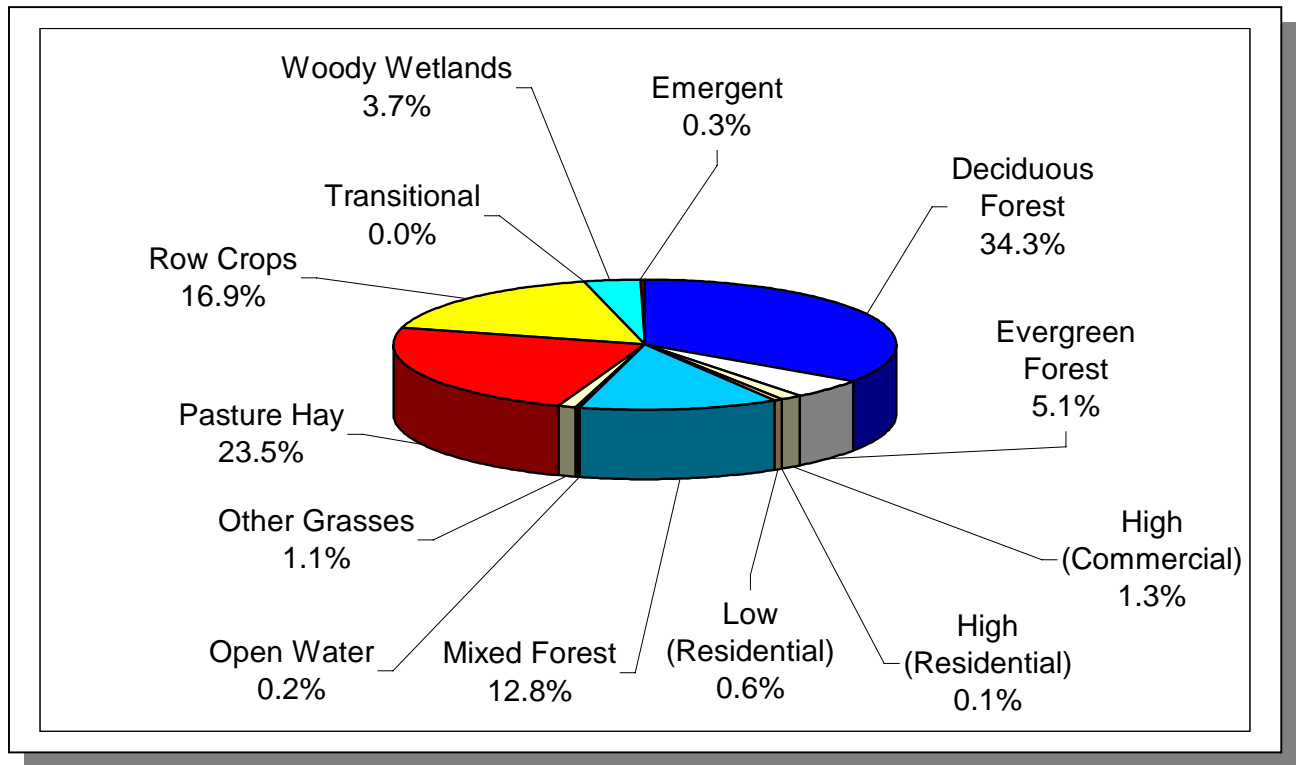


Figure 4-37. Land Use Distribution in Subwatershed 05130203070. More information is provided in Stones-Appendix IV.

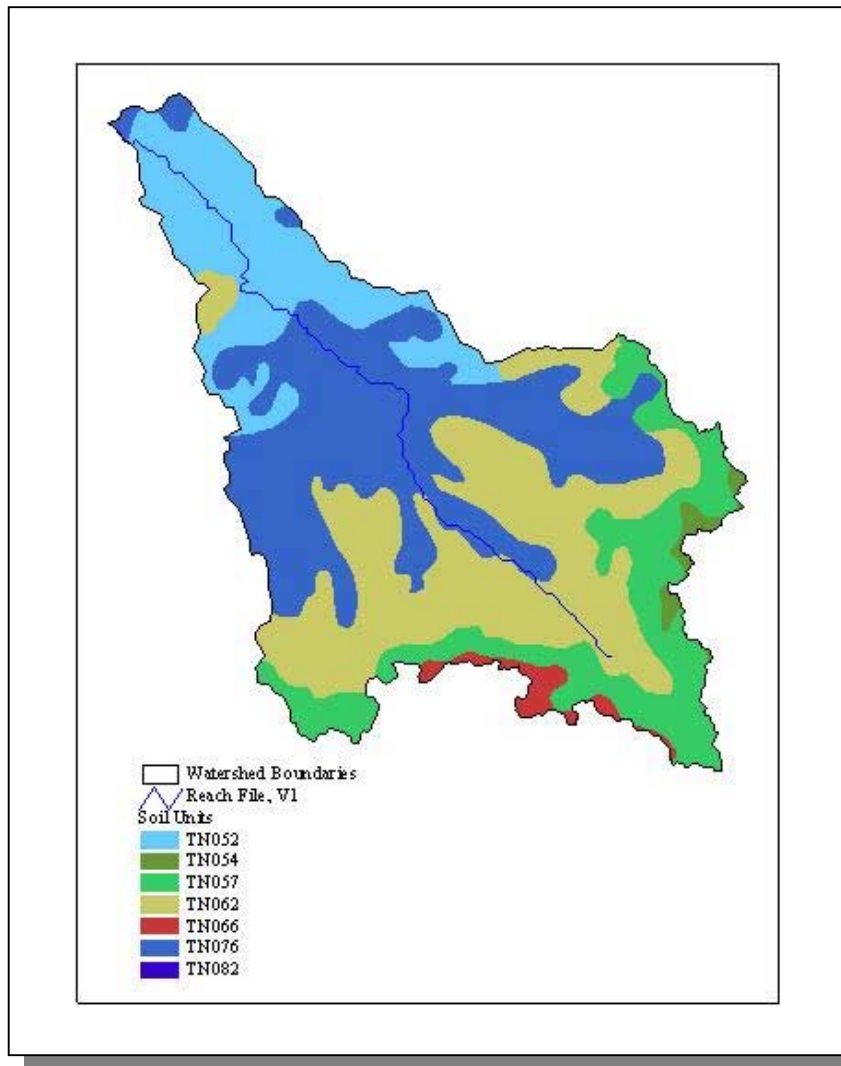


Figure 4-38. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203070.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN052	0.00	B	1.23	5.46	Silty Loam	0.39
TN054	0.00	C	3.04	4.84	Loam	0.32
TN057	0.00	C	1.14	5.01	Clay Loam	0.33
TN062	0.00	C	0.98	4.40	Clay Loam	0.26
TN066	0.00	B	2.62	4.75	Loam	0.28
TN076	28.00	C	0.73	6.26	Silty Clayey Loam	0.33
TN082	0.00	B	1.63	5.47	Loam	0.34

Table 4-38. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203070. More information is provided in Stones-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Bedford	30,411	34,203	0.92	279	314	12.5
Coffee	40,339	45,347	0.06	25	29	16.0
Rutherford	118,570	159,987	10.24	12,138	16,378	34.9
Totals	189,320	239,537		12,442	16,721	34.4

Table 4-39. Population Estimates in Subwatershed 05130203070.

NUMBER OF HOUSING UNITS						
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Murfreesboro	Rutherford	44,922	18,708	17,845	855	8

Table 4-40. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 05130203070.

4.2.G.ii. Point Source Contributions.



Figure 4-39. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203070. More information, including the names of facilities, is provided in Stones-Appendix IV.

4.2.G.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
2,310	4,834	299	8	159,517	129	48

Table 4-41. Summary of Livestock Count Estimates in Subwatershed 05130203070. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bedford	74.6	74.6	0.5	1.3
Coffee	114.4	114.2	2.8	12.7
Rutherford	155.7	155.7	0.4	0.9
Total	344.7	344.5	3.7	14.9

Table 4-42. Forest Acreage and Average Removal Rates (1987-1994) in Subwatershed 05130203070.

CROPS	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Berry (Horticultural)	0.47
Corn (Row Crops)	3.68
Soybeans (Row Crops)	3.09
Cotton (Row Crops)	4.79
Grass (Hayland)	0.27
Legume (Hayland)	0.32
Legume, Grass (Hayland)	0.49
Grass (Pastureland)	0.88
Legume (Pastureland)	0.12
Grass, Forbs, Legumes Mixed Pasture)	0.53
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.45
Conservation Reserve Program Land	0.28
Wheat (Close Grown Cropland)	2.90
Other Vegetable and Truck Crop	4.37
Other Cropland not Planted	6.68
Summer Fallow (Other Cropland)	4.60

Table 4-43. Annual Estimated Total Soil Loss in Subwatershed 05130203070.

4.2.H. 05130203080.

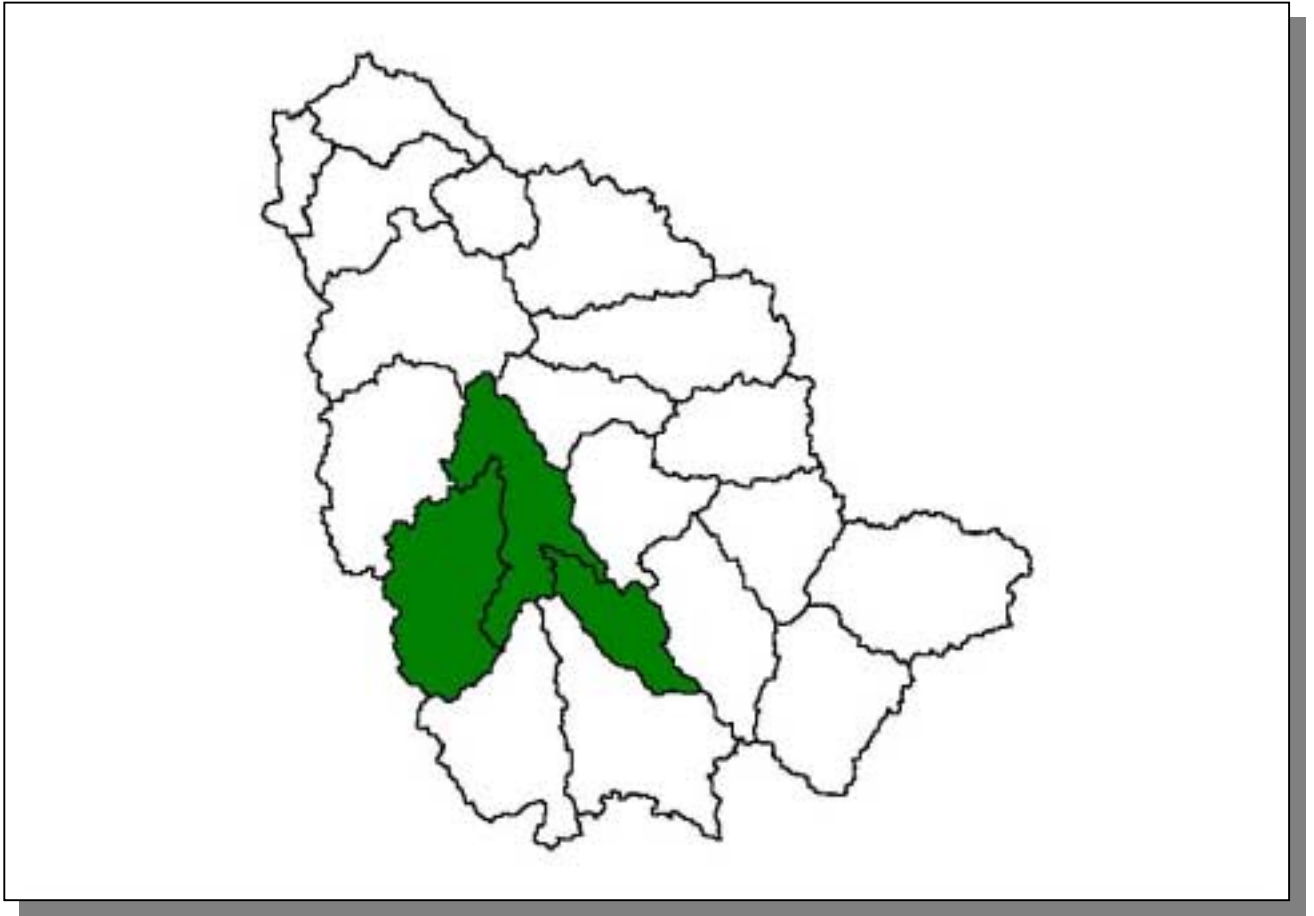


Figure 4-40. Location of Subwatershed 05130203080. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.H.i. General Description.

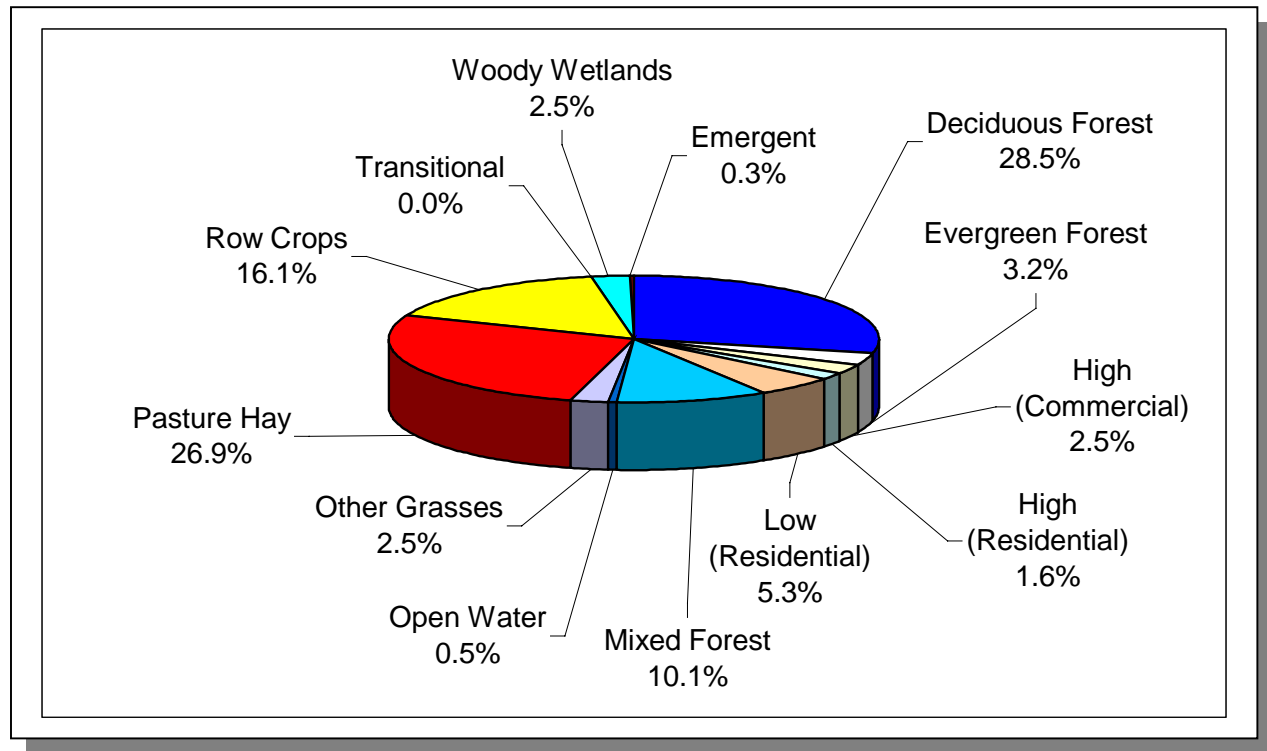


Figure 4-41. Land Use Distribution in Subwatershed 05130203080. More information is provided in Stones-Appendix IV.

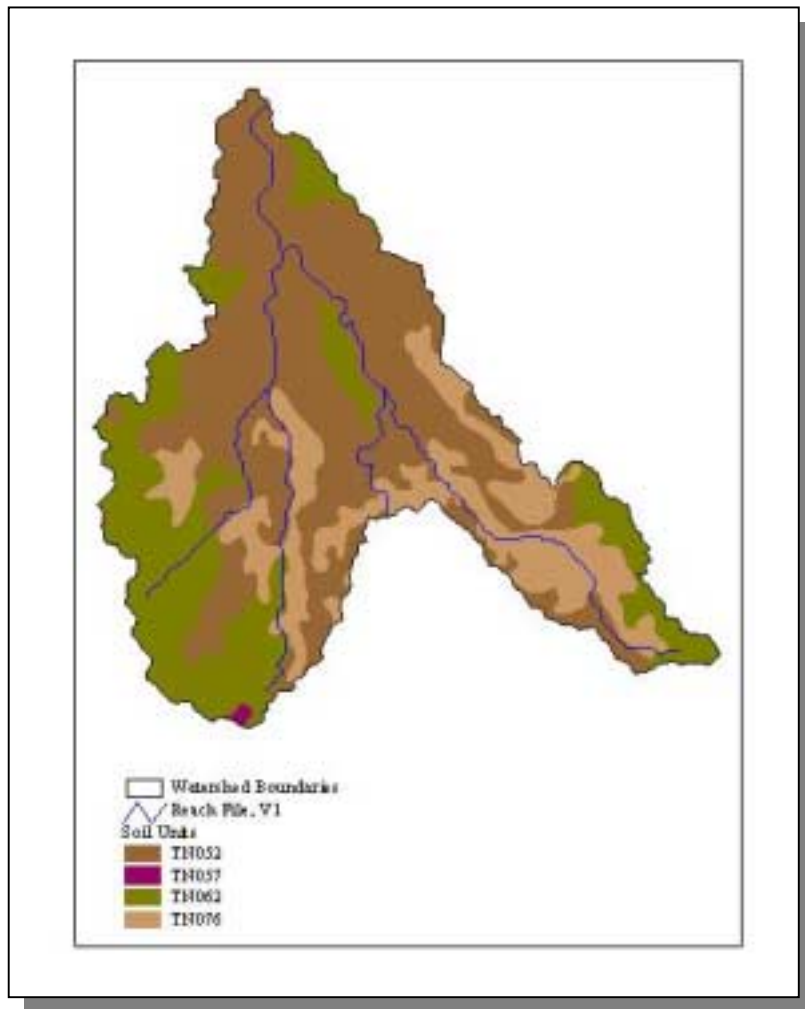


Figure 4-42. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203080.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN052	0.00	B	1.23	5.46	Silty Loam	0.39
TN057	0.00	C	1.14	5.01	Clayey Loam	0.33
TN062	0.00	C	0.98	4.40	Clayey Loam	0.26
TN076	28.00	C	0.73	6.26	Silty Clayey Loam	0.33

Table 4-44. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203080. More information is provided in Stones-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Rutherford	118,570	159,987	21.4	25,371	34,233	34.9

Table 4-45. Population estimates in Subwatershed 05130203080.

				NUMBER OF HOUSING UNITS		
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Murfreesboro	Rutherford	44,922	18,708	17,845	855	8
Smyrna	Rutherford	13,647	5,312	4,959	346	7
Total		58,569	24,020	22,804	1,201	15

Table 4-46. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 05130203080.

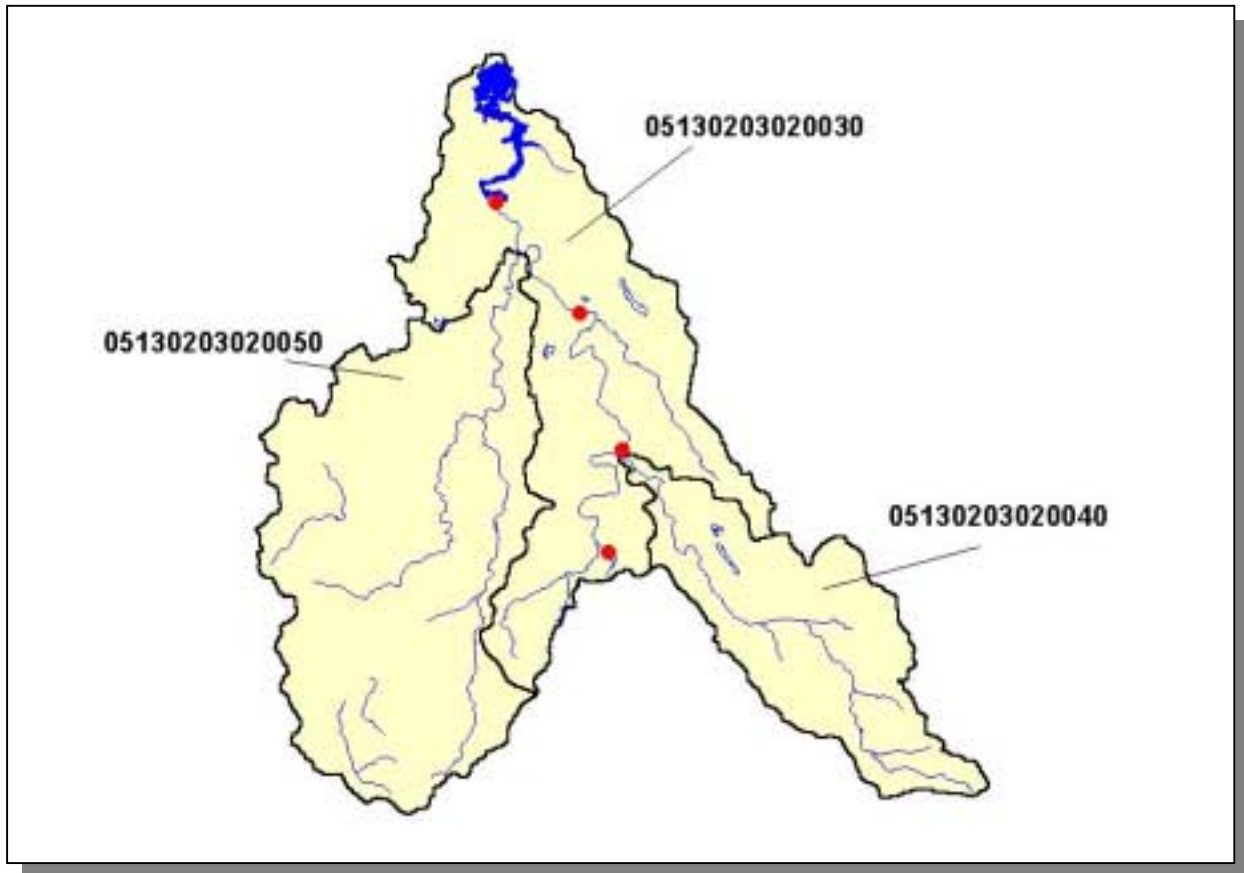


Figure 4-43. Location of Historical Streamflow Data Collection Sites in Subwatershed 05130203080. Subwatershed 05130203020030, 05130203020040, and 05130203020050 boundaries are shown for reference. More information may be found in Stones-Appendix IV.

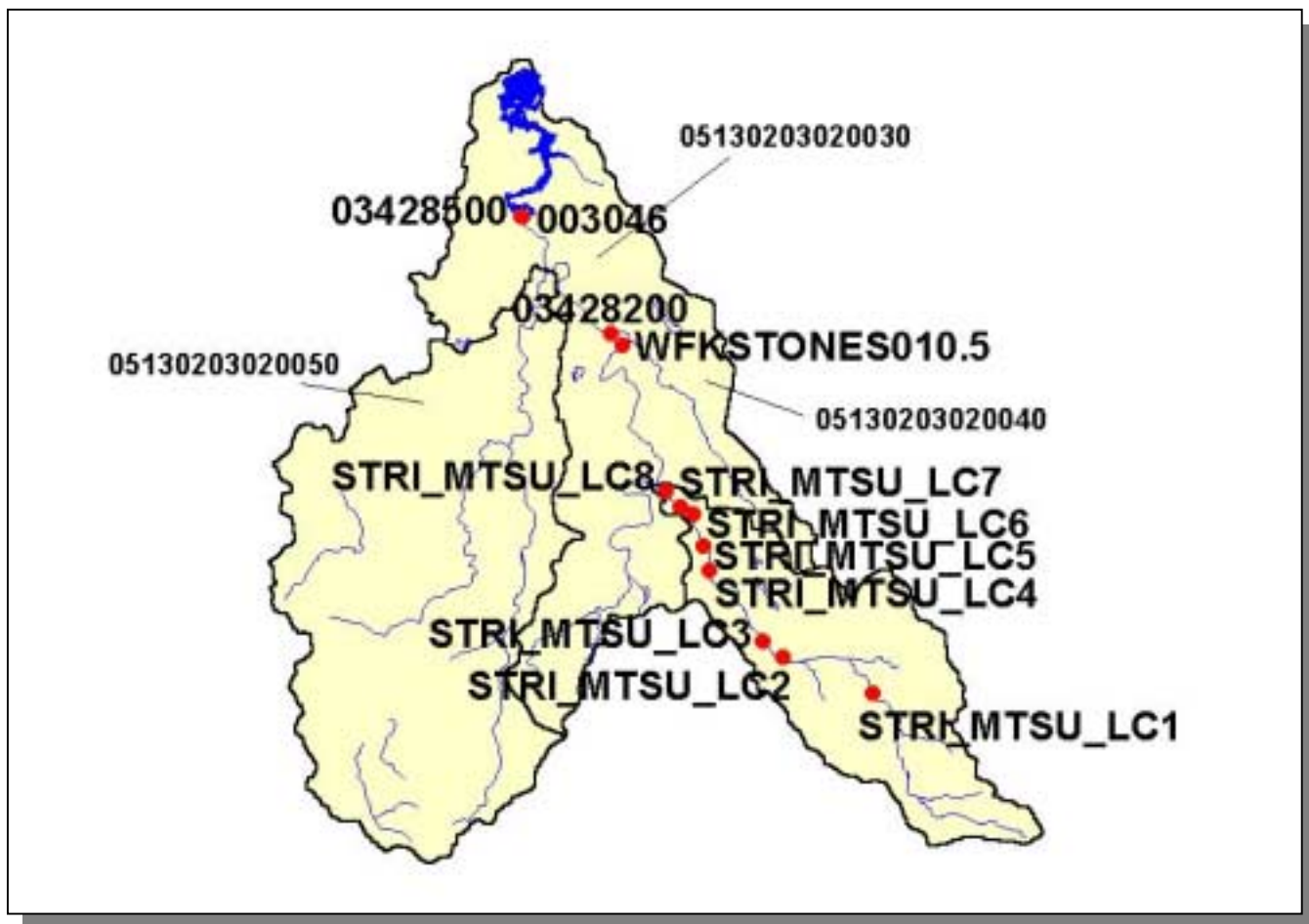


Figure 4-44. Location of STORET Monitoring Sites in Subwatershed 05130203080. Subwatershed 05130203020030, 05130203020040, and 05130203020050 boundaries are shown for reference. More information may be found in Stones-Appendix IV.

4.2.H.ii. Point Source Contributions.

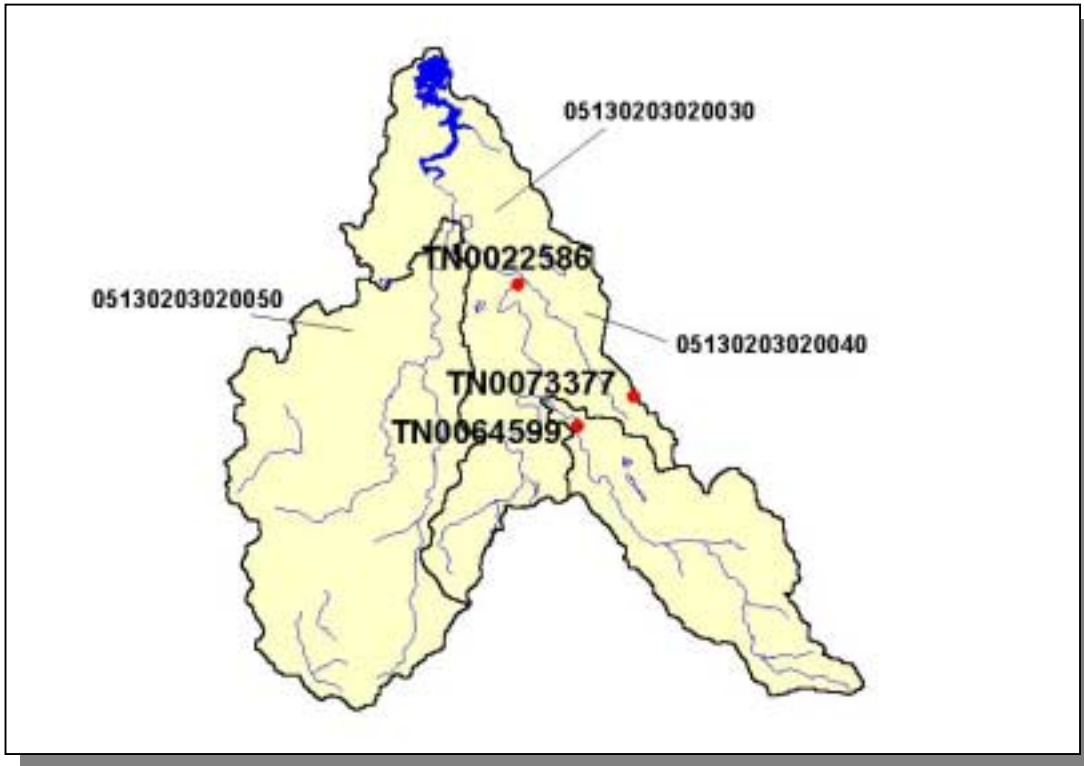


Figure 4-45. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203080. Subwatershed 05130203020030, 05130203020040, and 05130203020050 boundaries are shown for reference. More information, including the names of facilities, is provided in Stones-Appendix IV.

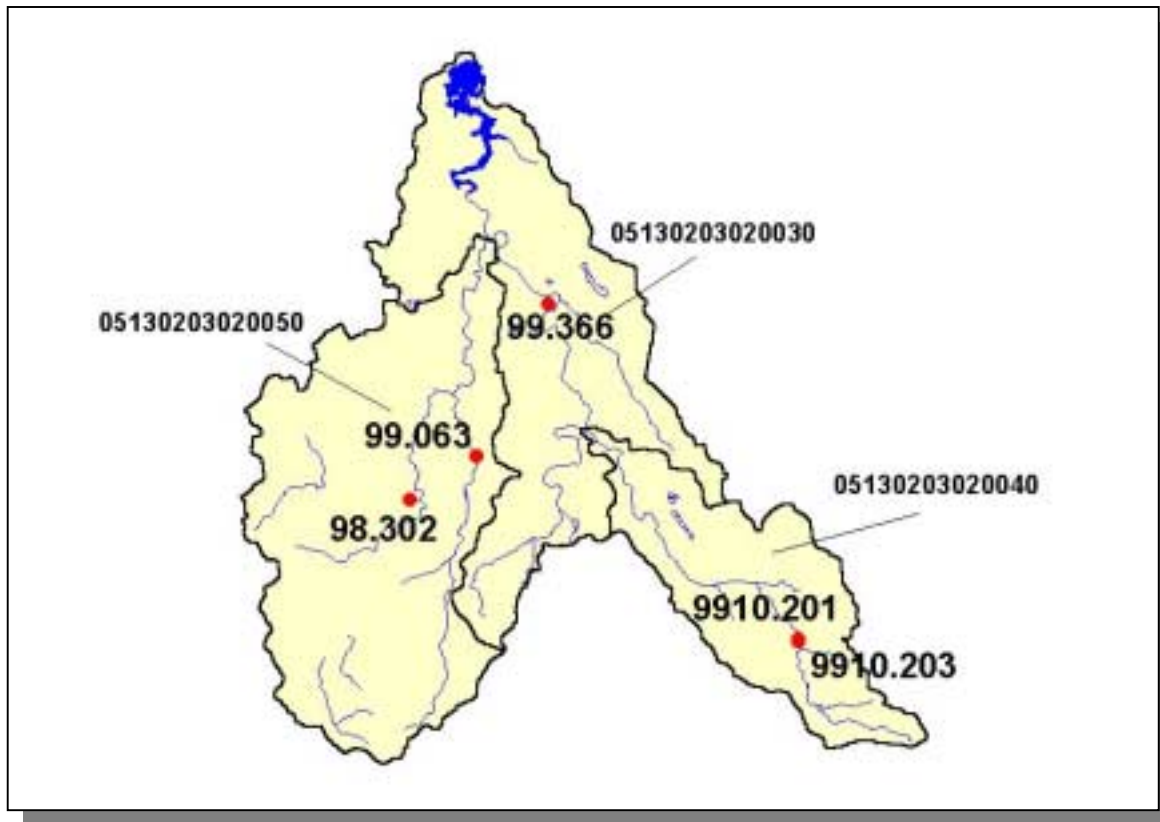


Figure 4-46. Location of ARAP Sites (Individual Permits) in Subwatershed 05130203080. Subwatershed 05130203020030, 05130203020040, and 05130203040050 boundaries are shown for reference. Additional information may be found in Stones-Appendix IV.

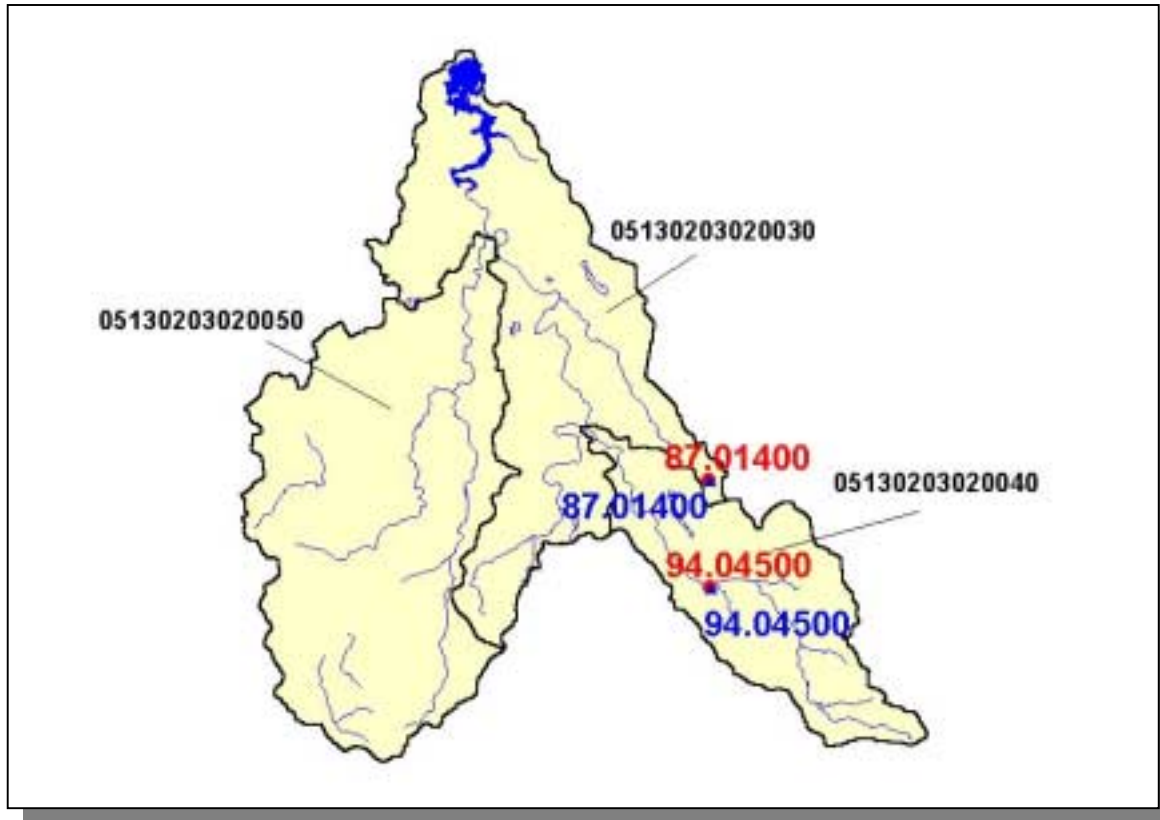


Figure 4-47. Location of Wetland Impact and Mitigation Sites in Subwatershed 05130203080. Impact (Blue Triangle) and mitigation (Red Circle) sites are from ARAP database. Subwatershed 05130203020030, 05130203020040, and 05130203040050 boundaries are shown for reference. Additional information may be found in Stones-Appendix IV.

4.2.H.ii.a. Dischargers to Waterbodies Listed on the 1998 303(d) List.

There are three NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 05130203080:

- TN0022586 discharges to West Fork Stones River @ RM 10.5
- TN0064599 discharges to Lytle Creek
- TN0073377 discharges to Sinking Creek

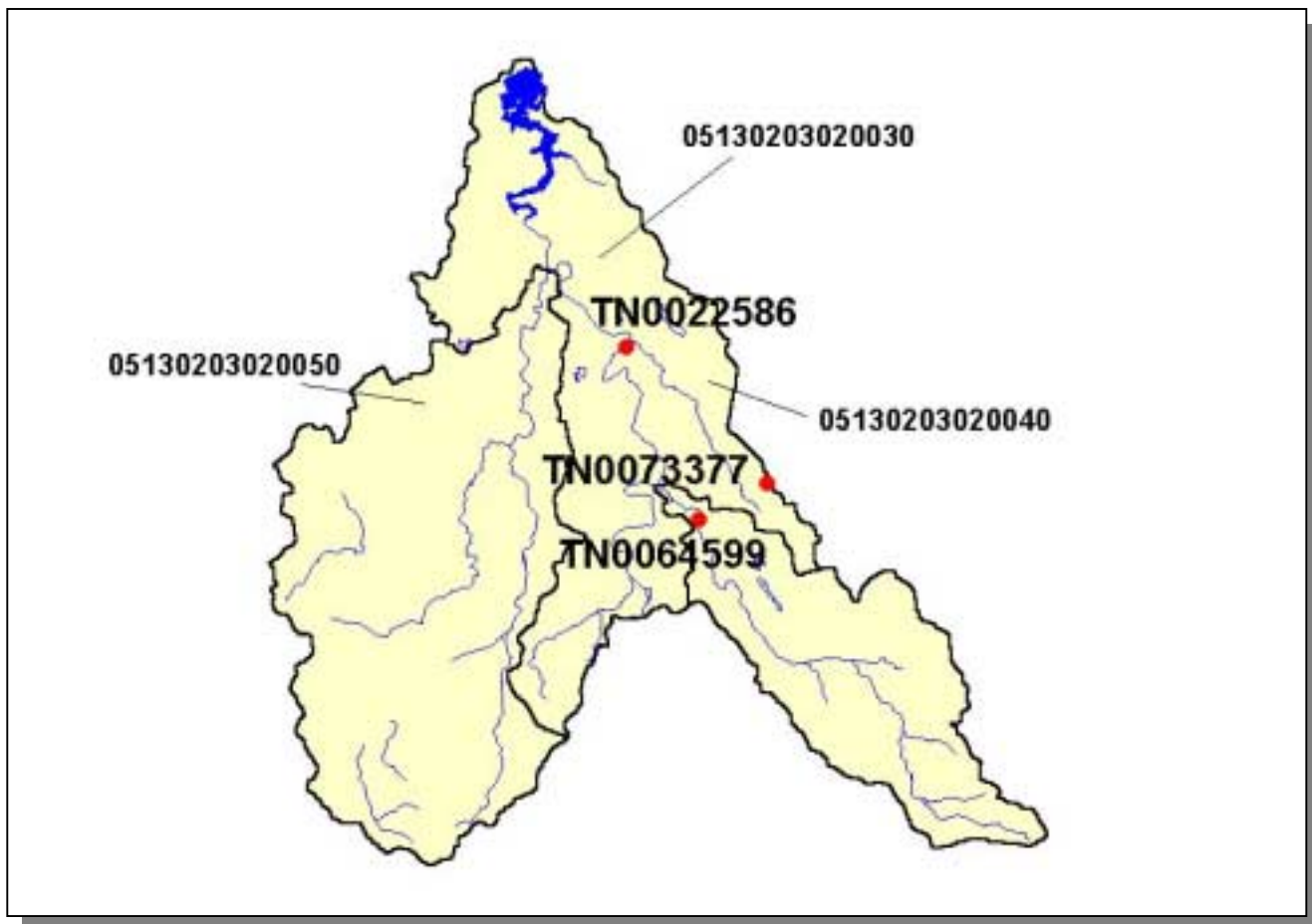


Figure 4-48. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 05130203080. Subwatershed 05130203020020, 05130203020030, and 05130203020040 boundaries are shown for reference. The names of facilities are provided in Stones-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QDESIGN	QLTA
TN0022586	0	0	0	8.0	9.7
TN0064599	0	0	0		0.0663
TN0073377	0	0	0		0.0043

Table 4-47. Receiving Stream Flow Information for NPDES Dischargers to Water Bodes Listed on the 1998 303(d) List in Subwatershed 05130203080. Data are in million gallons per day (MGD). Data were calculated using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

PERMIT #	CBOD ₅	NH ₃	FECAL	METAL	WET
TN0022586	X	X	X	X	X
TN0064599				X	X
TN0073377				X	X

Table 4-48. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 05130203080.

PERMIT #	Cr	Cu	CN	Zn	Pb	TOLUENE	ETHYLBENZENE	BENZENE
TN0022586	0.054 ^a	Report	0.01 ^a	Report				
TN0064599					0.01	0.01	0.01	0.005
TN0073377					0.01	0.01	0.01	0.005

Table 4-49. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 05130203080. ^aMonthly Average.

PERMIT #	TSS	pH	O&G	BENZENE	ETHYLBENZENE	TOLUENE	Pb	XYLENE	CN	BYPASS
TN0022586	40	2							13	1,276
TN0064599	9		2	5	4	4	4	1		
TN0073377	2		1	1	1	4	2	2		

Table 4-50. Number of Permit Violations Based on DMR Data (2/28/90-4/30/00) for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 05130203080.
TSS, Total Suspended Solids; O&G, Oil and Grease.

4.2.H.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
4,915	10,292	634	17	242	104

Table 4-51. Summary of Livestock Count Estimates in Subwatershed 05130203080.
According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Rutherford	155.7	155.7	0.4	0.9

Table 4-52. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 05130203080.

CROP	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Berry (Horticultural)	0.47
Corn (Row Crops)	3.61
Soybeans (Row Crops)	2.82
Cotton (Row Crops)	4.79
Grass (Hayland)	0.21
Legume (Hayland)	0.32
Legume Grass (Hayland)	0.49
Grass (Pastureland)	0.89
Legume (Pastureland)	0.12
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.47
Conservation Reserve Program Land	0.28

Table 4-53. Annual Estimated Total Soil Loss in Subwatershed 05130203080.

4.2.I. 05130203090.

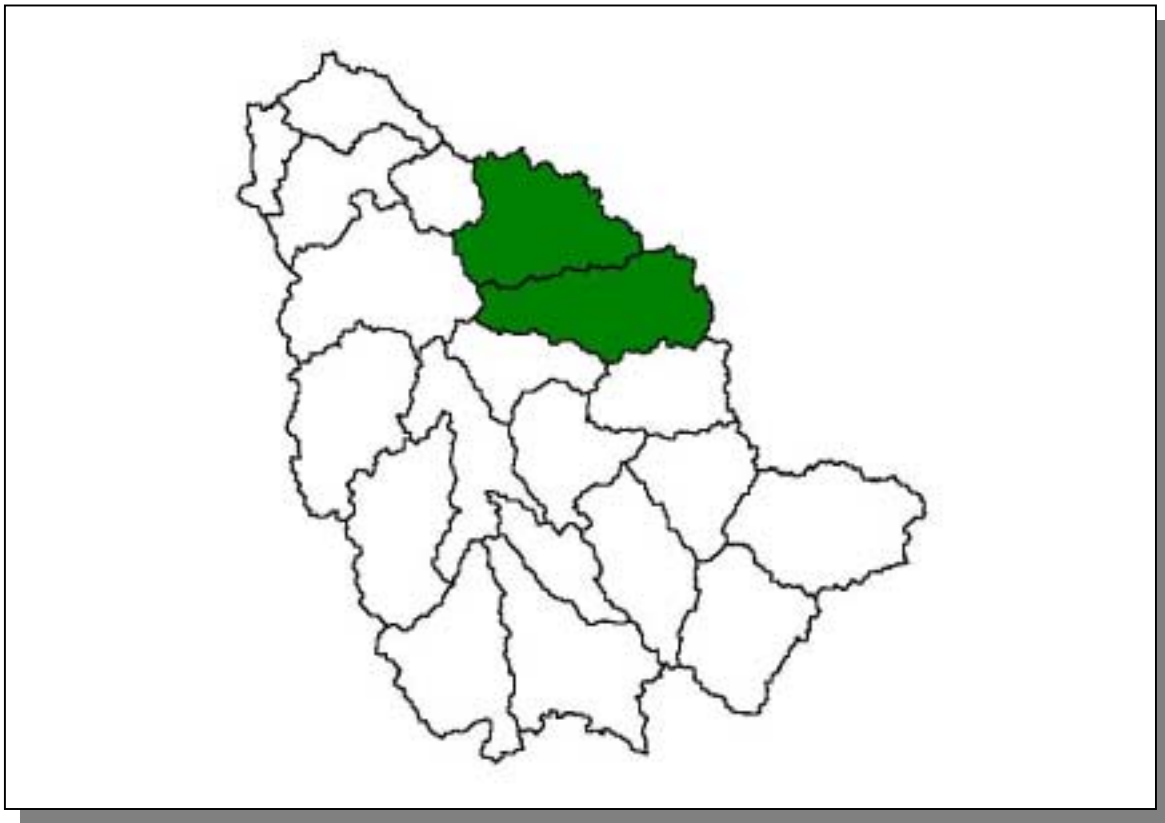


Figure 4-49. Location of Subwatershed 05130203090. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.I.i. General Description.

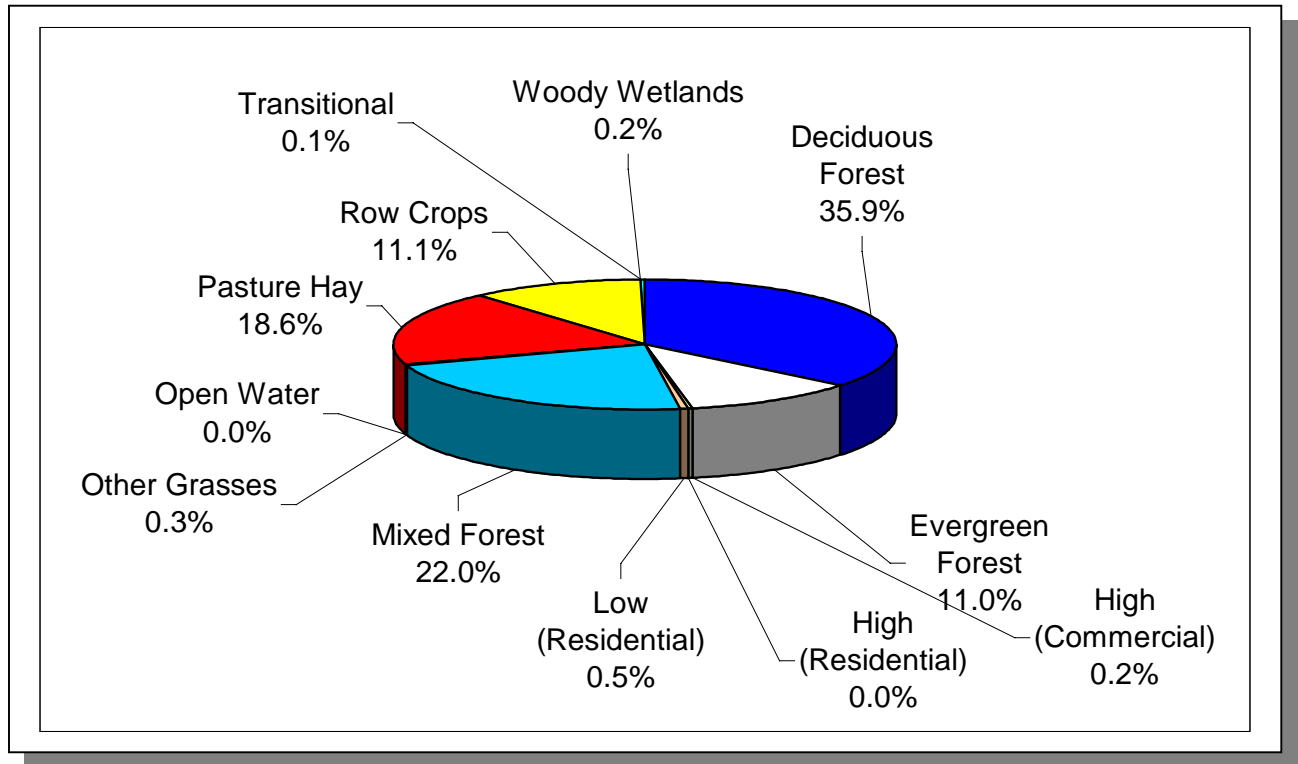


Figure 4-50. Land Use Distribution in Subwatershed 05130203090. More information is provided in Stones-Appendix IV.

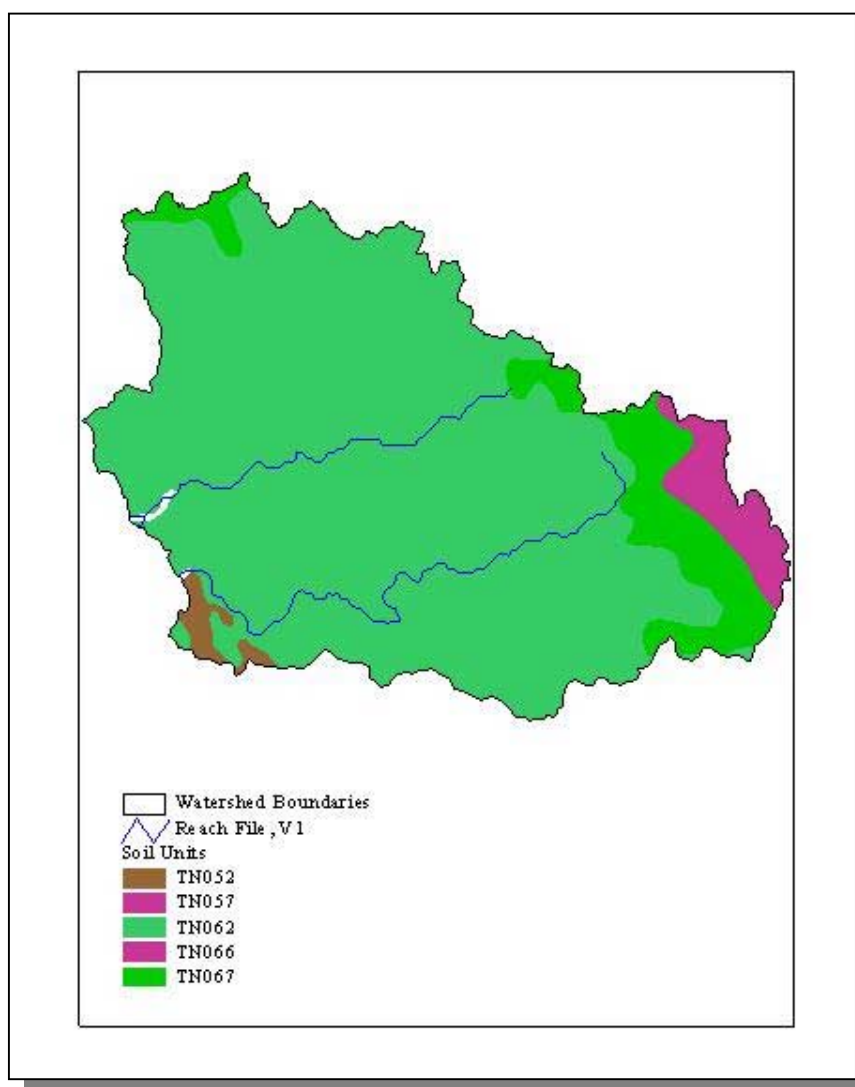


Figure 4-51. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203090.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN052	0.00	B	1.23	5.46	Silty Loam	0.39
TN057	0.00	C	1.14	5.01	Clayey Loam	0.33
TN062	0.00	C	0.98	4.40	Clayey Loam	0.26
TN066	0.00	B	2.62	4.75	Loam	0.28
TN067	2.00	C	2.69	5.51	Silty Loam	0.35

Table 4-54. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203090. More information is provided in Stones-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Rutherford	118,570	159,987	2.36	2,796	3,773	34.9
Wilson	67,675	81,327	18.41	12,456	14,969	20.2
Totals	186,245	241,314		15,252	18,742	22.9

Table 4-55. Population Estimates in Subwatershed 05130203090.

4.2.I.ii. Point Source Contributions.



Figure 4-52. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203090. Subwatershed 051302030020 and 051302030030 boundaries are shown for reference. More information, including the names of facilities, is provided in Stones-Appendix IV.

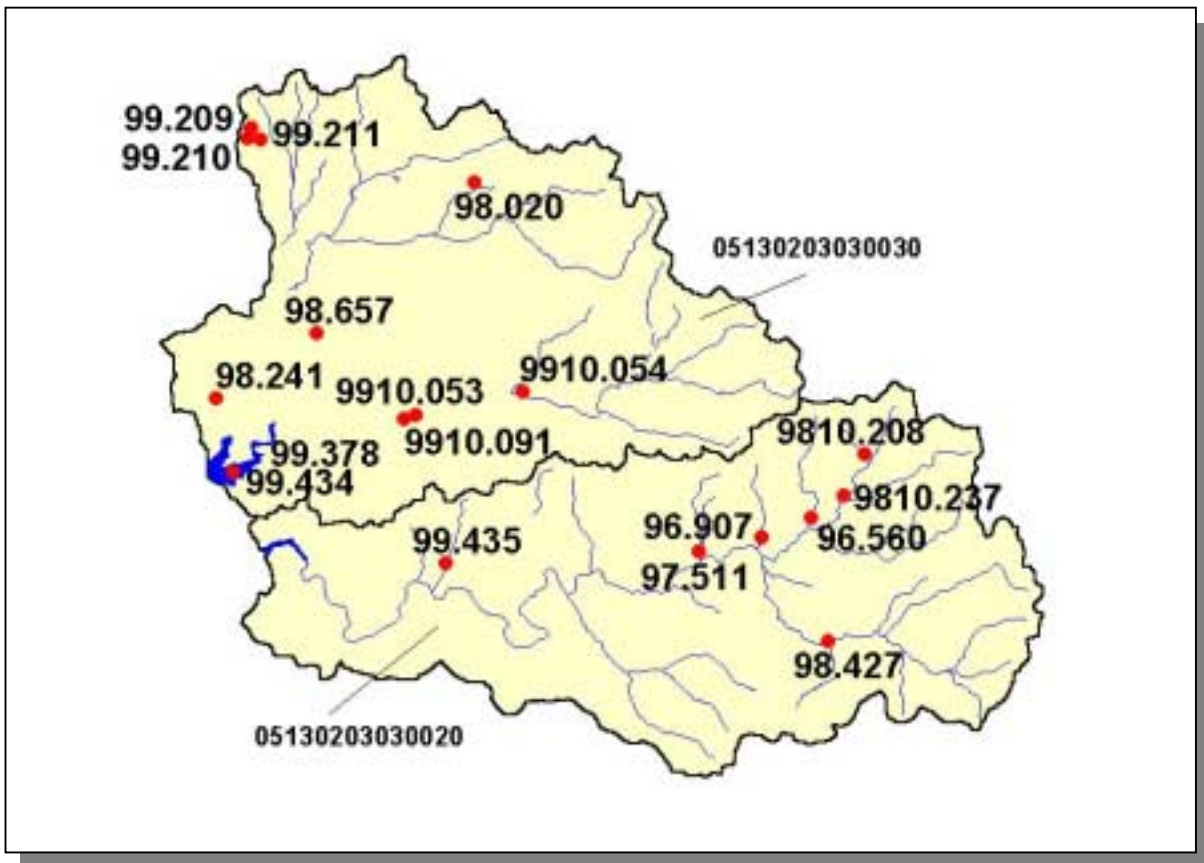


Figure 4-53. Location of ARAP Sites (Individual Permits) in Subwatershed 05130203090. Subwatershed 05130203030020 and 05130203030030 boundaries are shown for reference. More details may be found in Stones-Appendix IV.

4.2.1.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
4,267	8,055	251	13	264	74

Table 4-56. Summary of Livestock Count Estimates in Subwatershed 05130203090. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Rutherford	155.7	155.7	0.4	0.9
Wilson	98.1	97.0	1.7	6.8
Total	253.8	252.7	2.1	7.7

Table 4-57. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 05130203090.

CROP	TONS/ACRE/YEAR
Corn (Row Crops)	2.39
Grass (Hayland)	0.35
Grass (Pastureland)	0.48
Grass, Forbs, Legumes (Mixed Pasture)	0.87
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.28
Non Agricultural Land Use	0.00
Soybeans (Row Crops)	6.25
Tobacco (Row Crops)	19.23
Wheat (Close Grown Cropland)	1.96
Legume Grass (Hayland)	0.39
All Other Close Grown Cropland	2.49
Berry (Horticultural)	0.47
Cotton (Row Crops)	4.79
Legume (Hayland)	0.32
Legume (Pastureland)	0.12
Conservation Reserve Program Land	0.28

Table 4-58. Annual Estimated Total Soil Loss in Subwatershed 05130203090.

4.2.J. 05130203100.

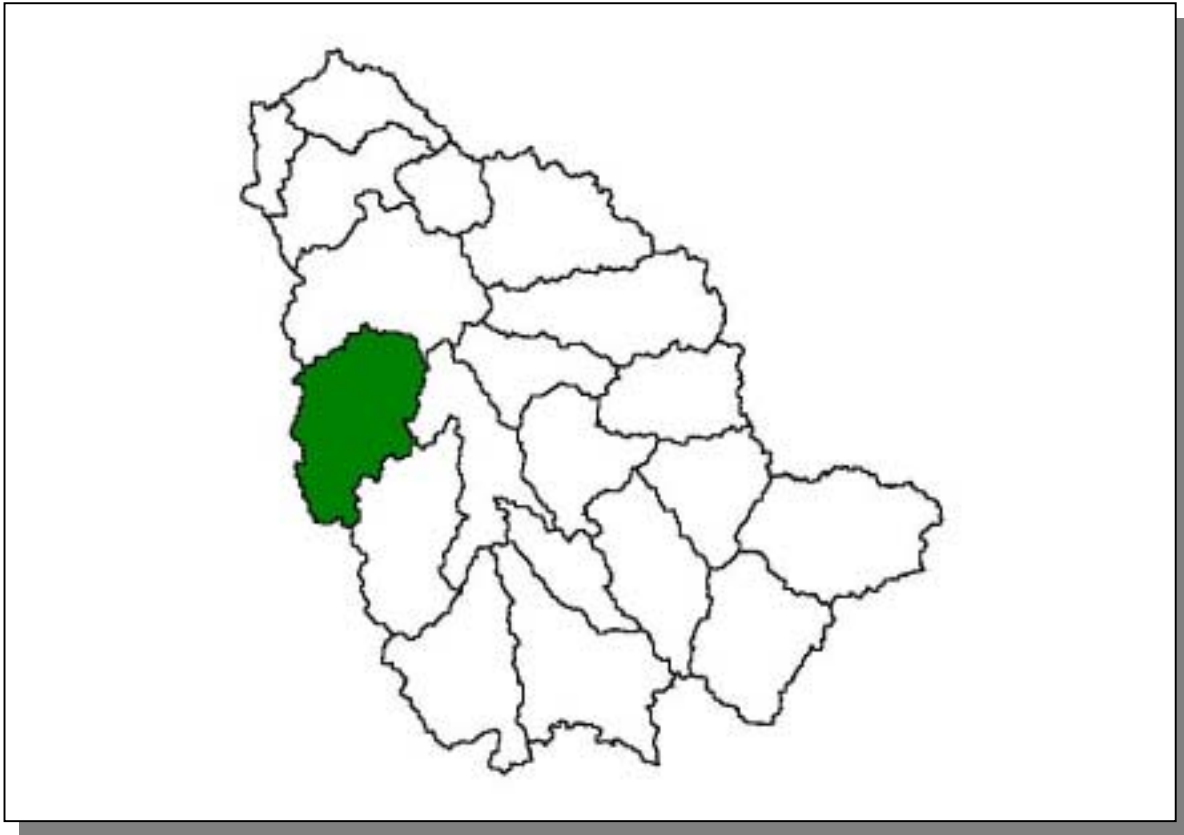


Figure 4-54. Location of Subwatershed 05130203100. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.J.i. General Description.

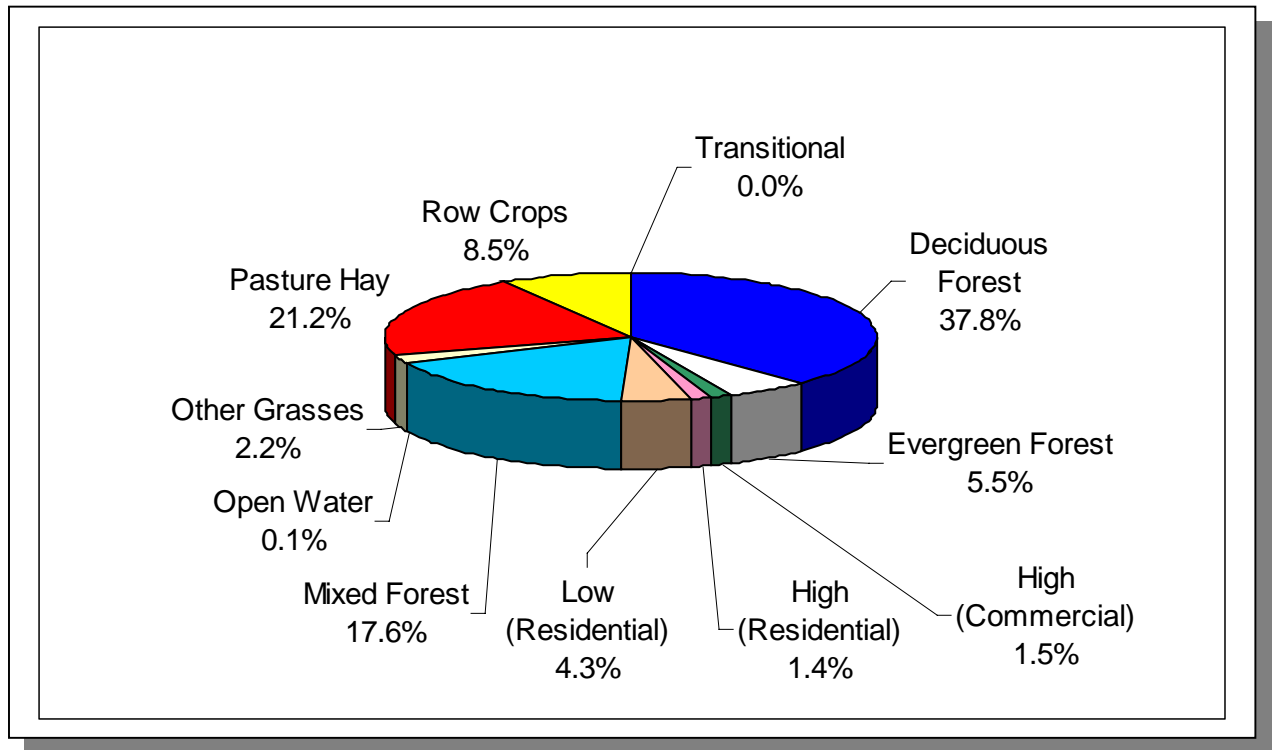


Figure 4-55. Land Use Distribution in Subwatershed 05130203100. More information is provided in Stones-Appendix IV.

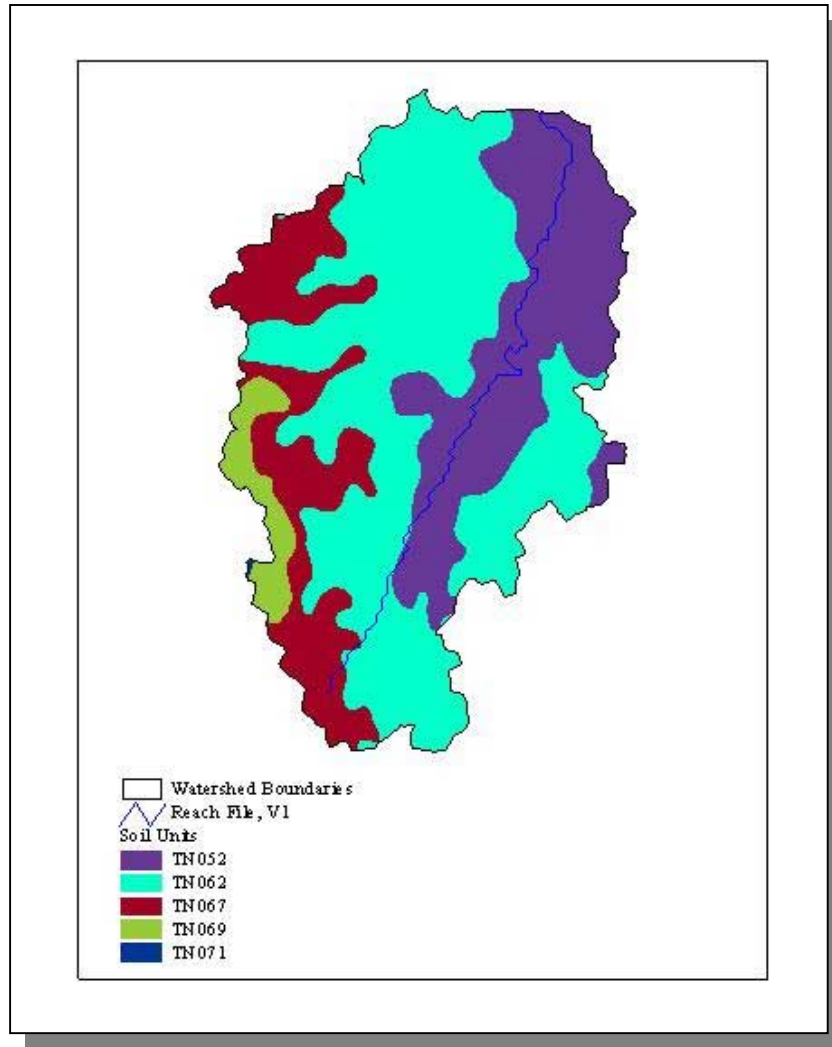


Figure 4-56. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203100.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN052	0.00	B	1.23	5.46	Silty Loam	0.39
TN062	0.00	C	0.98	4.40	Clayey Loam	0.26
TN067	2.00	C	2.69	5.51	Silty Loam	0.35
TN069	0.00	C	2.06	5.36	Loam	0.34
TN071	0.00	C	2.37	5.70	Silty Loam	0.33

Table 4-59. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203100. More information is provided in Stones-Appendix IV

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Rutherford	118,570	159,987	9.33	11,062	14,926	34.9
Williamson	81,021	111,453	0.73	593	816	37.6
Totals	199,591	271,440		11,655	15,742	35.1

Table 4-60. Population Estimates in Subwatershed 05130203100.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
La Vergne	Rutherford	7,499	2,810	2,299	451	60
Smyrna	Rutherford	13,647	5,312	4,959	346	7
Total		21,148	8,122	7,258	797	67

Table 4-61. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 05130203100.



Figure 4-57. Location of STORET Monitoring Stations in Subwatershed 05130203100. More information is provided in Stones-Appendix IV.

4.2.J.ii. Point Source Contributions.



Figure 4-58. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203100. More information, including the names of facilities, is provided in Stones-Appendix IV.

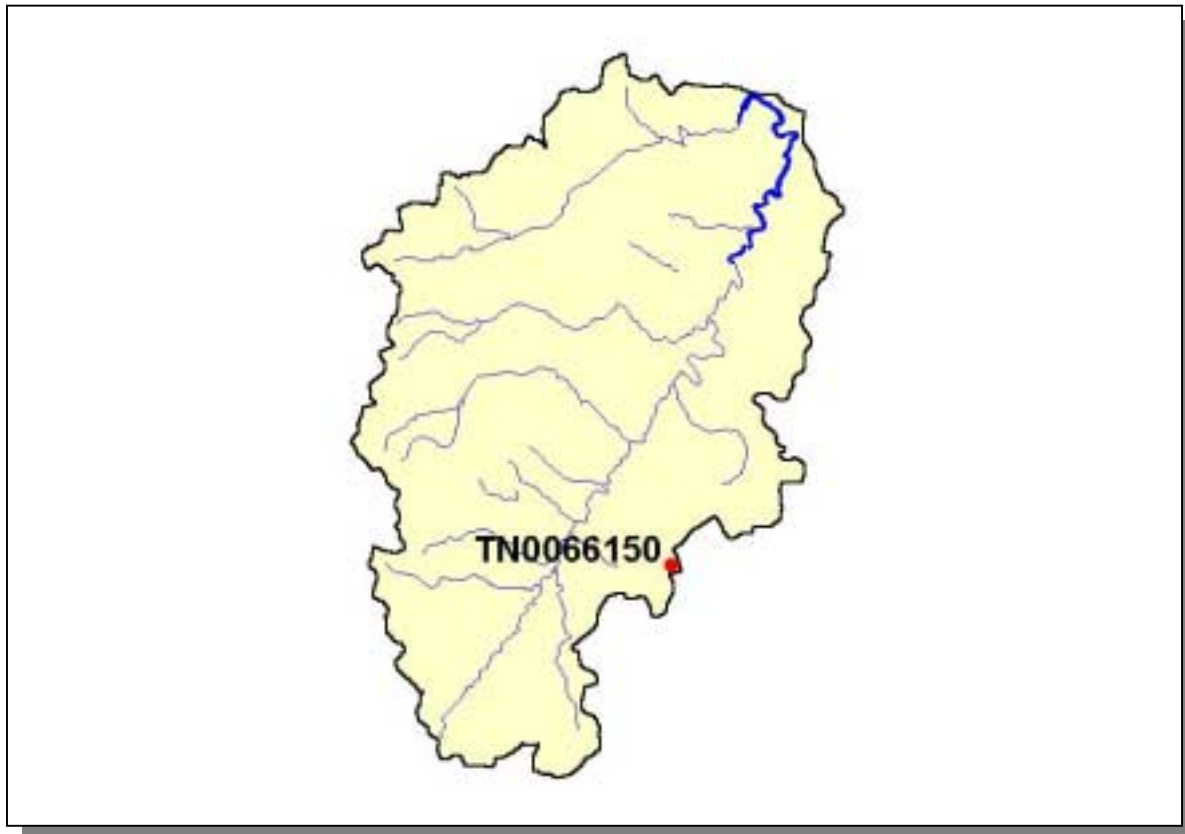


Figure 4-59. Location of Active Mining Sites in Subwatershed 05130203100. More details may be found in Stones-Appendix IV.

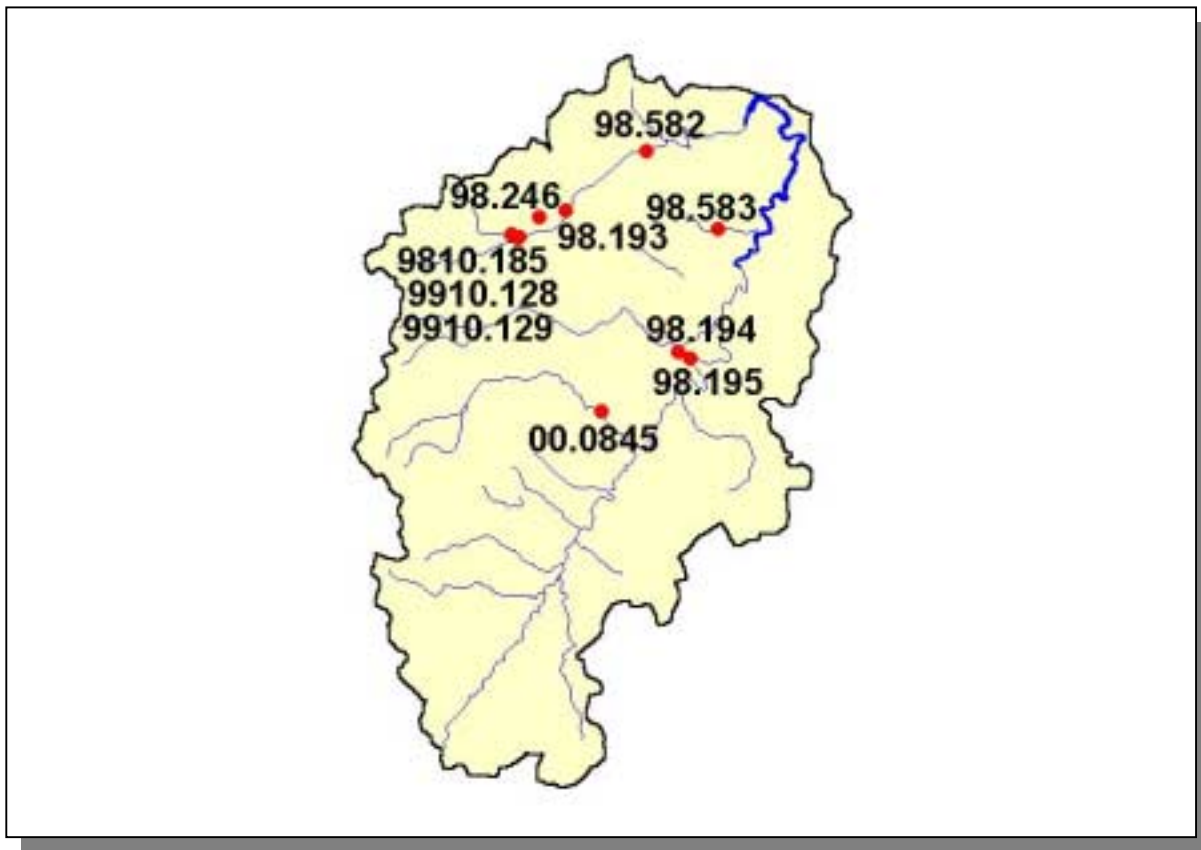


Figure 4-60. Location of ARAP Sites (Individual Permits) in Subwatershed 05130203100.
More details may be found in Stones-Appendix IV.

4.2.J.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List:

There is one facility discharging to water bodies listed on the 1998 303(d) list in Subwatershed 05130203100:

- TN 0020541 discharges to Stewart Creek @ RM 5.65



Figure 4-61. Location of NPDES Discharger to Water Bodies Listed on the 1998 303(d) List in Subwatershed 05130203100. The names of facilities are provided in Stones-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QDESIGN
TN0020541	0	0	0	5.2

Table 4-62. Receiving Stream Flow Information for NPDES Dischargers to Water Bodes Listed on the 1998 303(d) List in Subwatershed 05130203100. Data are in million gallons per day (MGD). Data were calculated using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

PERMIT #	CBOD ₅	NH ₃	FECAL	WET
TN0020541	X	X	X	X

Table 4-63. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 05130203100.

4.2.J.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
2,038	4,212	247	6	121	45

Table 4-64. Summary of Livestock Count Estimates in Subwatershed 05130203100.
According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Rutherford	155.7	155.7	0.4	0.9
Williamson	142.0	142.0	1.0	3.3
Total	297.7	297.7	1.4	4.2

Table 4-65. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 05130203100.

CROP	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Berry (Horticultural)	0.47
Corn (Row Crops)	3.73
Soybeans (Row Crops)	2.86
Cotton (Row Crops)	4.79
Grass (Hayland)	0.20
Legume (Hayland)	0.37
Legume,Grass (Hayland)	0.47
Grass (Pastureland)	0.87
Legume (Pastureland)	0.13
Grass, Forbs, Legumes (Mixed Pasture)	0.53
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.46
Conservation Reserve Program Land	0.27
Tobacco (Row Crops)	6.75
Wheat (Close Grown Cropland)	1.27
Other Cropland not Planted	6.46
Other Land in Farms	0.12

Table 4-66. Annual Estimated Total Soil Loss in Subwatershed 05130203100.

4.2.K. 05130203110.

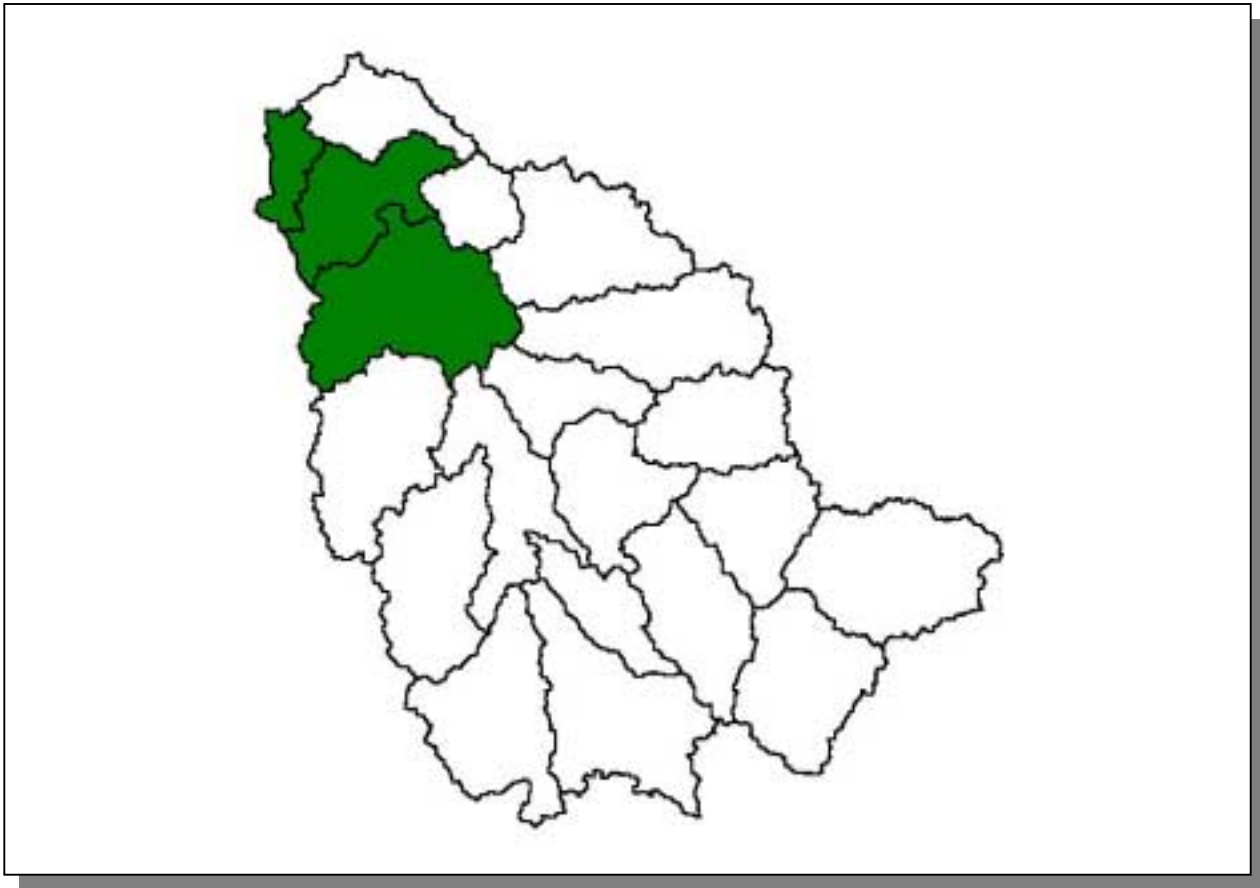


Figure 4-62. Location of Subwatershed 05130203110. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.K.i. General Description.

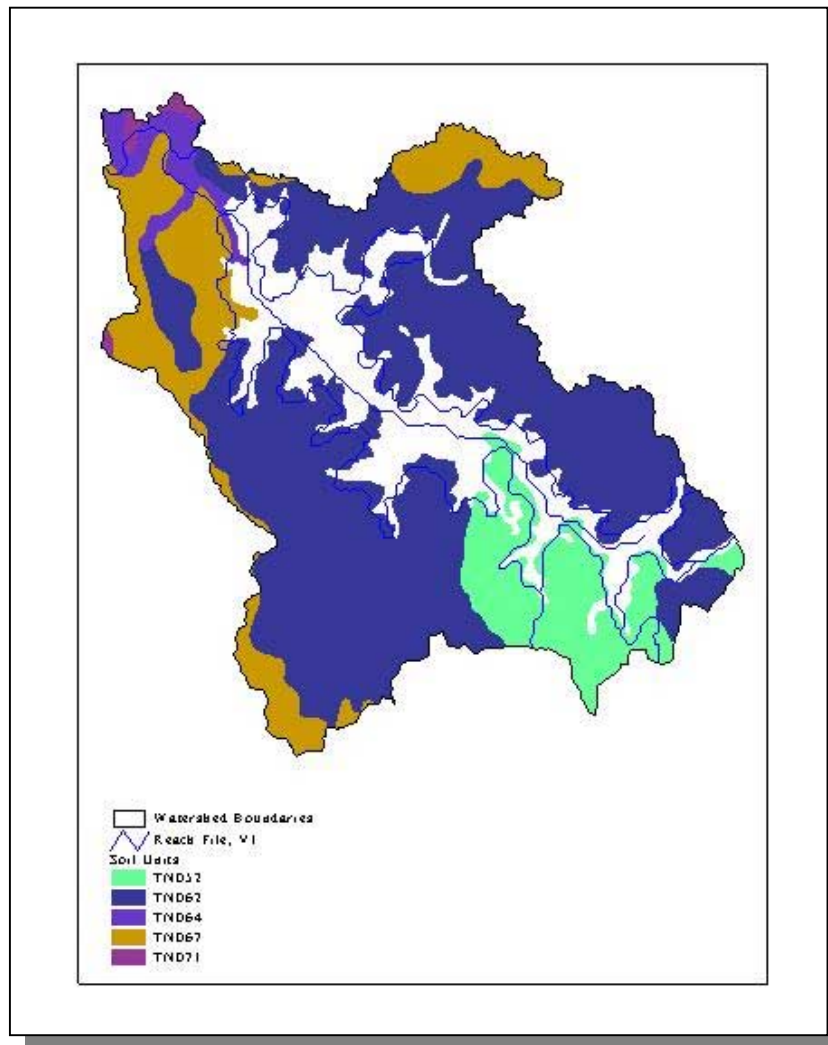


Figure 4-63. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203110.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN052	0.00	B	1.23	5.46	Silty Loam	0.39
TN062	0.00	C	0.98	4.40	Clayey Loam	0.26
TN064	7.00	C	1.19	5.82	Silty Loam	0.37
TN067	2.00	C	2.69	5.51	Silty Loam	0.35
TN071	0.00	C	2.37	5.70	Silty Loam	0.33

Table 4-67. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203110. More information is provided in Stones-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% Change
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Davidson	510,784	535,032	13.71	70,029	73,353	4.7
Rutherford	118,570	159,987	7.67	9,100	12,279	34.9
Williamson	81,021	111,453	0.05	37	50	35.1
Wilson	67,675	81,327	1.7	1,152	1,384	20.1
Totals	778,050	887,799		80,318	87,066	8.4

Table 4-68. Population Estimates in Subwatershed 05130203110.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Mount Juliet	Wilson	5,389	1,926	1,265	661	0
La Vergne	Rutherford	7,499	2,810	2,299	451	60
Smyrna	Rutherford	13,647	5,312	4,959	346	7
Nashville (remainder)	Davidson	488,518	219,521	203,640	15,576	305
Total		515,053	229,569	212,163	17,034	372

Table 4-69. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 05130203110.

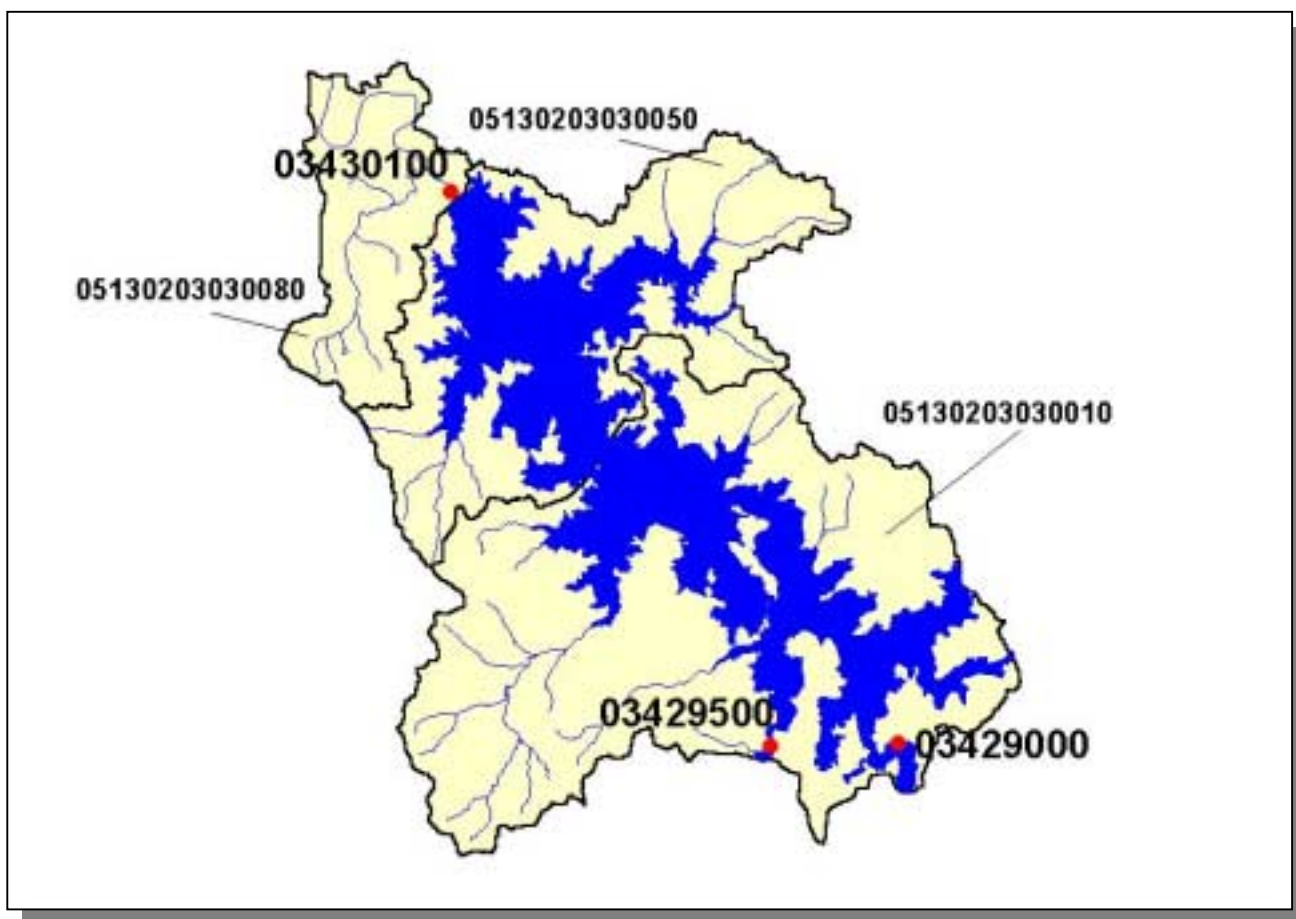


Figure 4-64. Location of Historical Streamflow Data Collection Sites in Subwatershed 05130203110. Subwatershed 05130203030010, 05130203030050, and 05130203030080 boundaries are shown for reference. More information is provided in Stones-Appendix IV.

4.2.K.ii. Point Source Contributions.

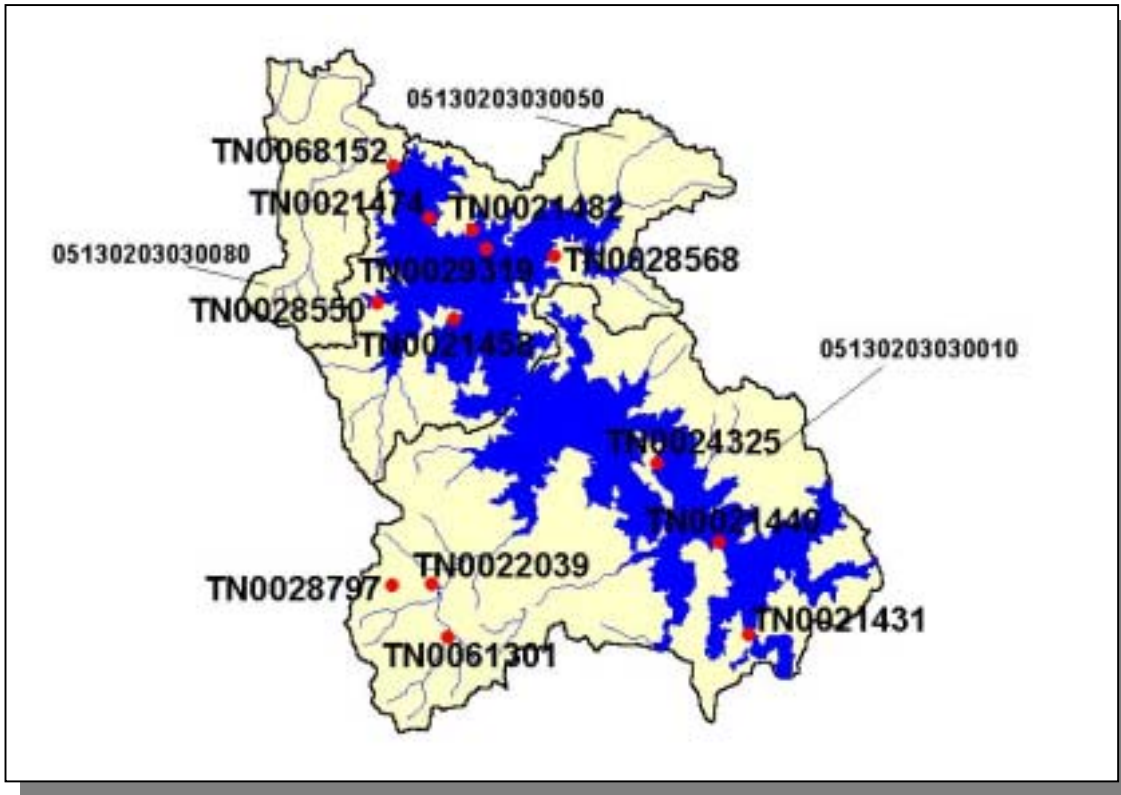


Figure 4-65. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203110. Subwatershed 051302030010, 051302030050, and 051302030080 boundaries are shown for reference. More information, including the names of facilities, is provided in Stones-Appendix IV.

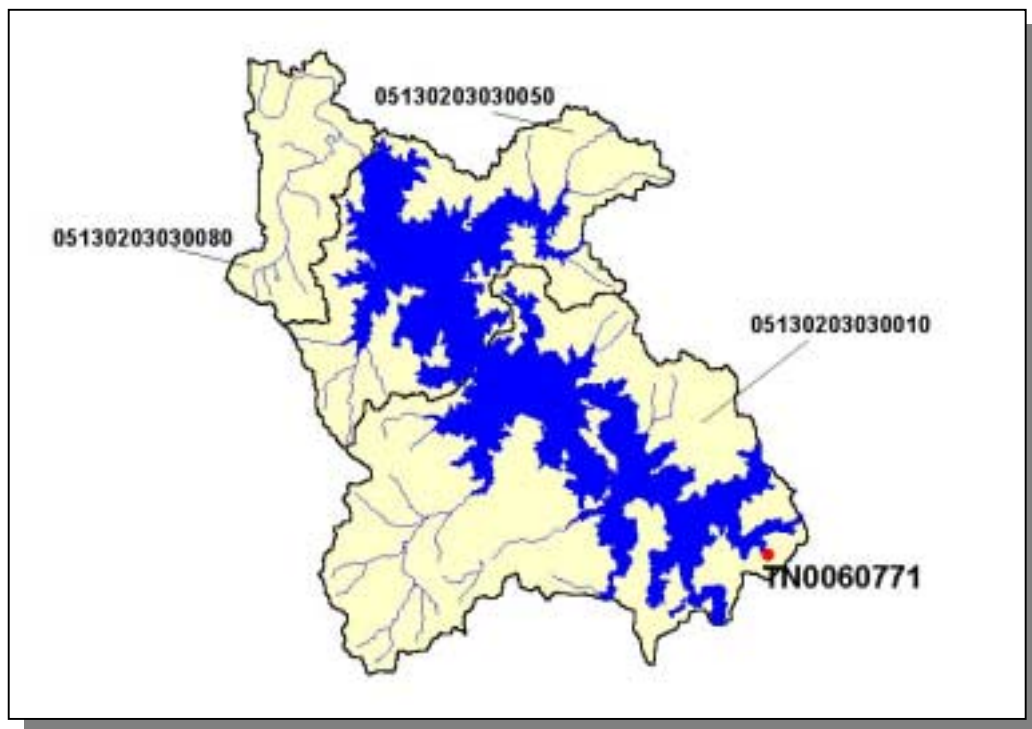


Figure 4-66. Location of Active Mining Sites in Subwatershed 05130203110. Subwatershed 051302030010, 051302030050, and 051302030080 boundaries are shown for reference. More details may be found in Stones-Appendix IV.

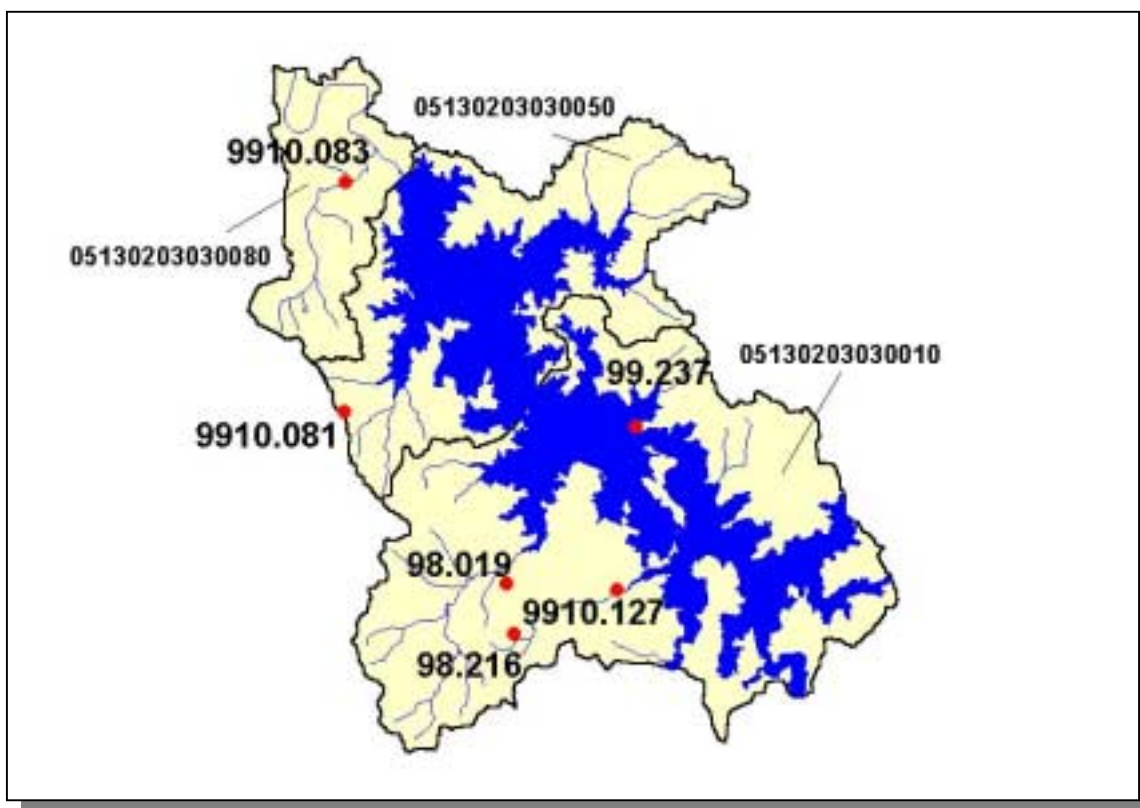


Figure 4-67. Location of ARAP Sites (Individual Permits) in Subwatershed 05130203110. Subwatershed 051302030010, 051302030050, and 051302030080 boundaries are shown for reference. More details may be found in Stones-Appendix IV.

4.2.K.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
1,035	4,376	99	9	79	21

Table 4-70. Summary of Livestock Count Estimates in Subwatershed 05130203110. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Davidson	108.7	108.1	2.3	9.7
Rutherford	155.7	155.7	0.4	0.9
Williamson	142.0	142.0	1.0	3.3
Wilson	98.1	97.0	1.7	6.8
Total	504.5	502.8	5.4	20.7

Table 4-71. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 05130203110.

CROP	TONS/ACRE/YEAR
Soybeans (Row Crops)	9.93
Grass (Pastureland)	0.60
Non Agricultural Land Use	0.00
All Other Close Grown Cropland	2.29
Grass (Hayland)	0.14
Grass, Forbs, Legumes (Mixed Pasture)	0.56
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.38
Corn (Row Crops)	3.38
Forest Land (Grazed)	0.00
Tobacco (Row Crops)	18.90
Wheat (Close Grown Cropland)	1.95
Legume, Grass (Hayland)	0.47
Berry (Horticultural)	0.47
Cotton (Row Crops)	4.79
Legume (Hayland)	0.32
Legume (Pastureland)	0.12
Conservation Reserve Program Land	0.28
Other Cropland not Planted	6.46
Other Land in Farms	0.12

Table 4-72. Annual Estimated Total Soil Loss in Subwatershed 05130203110.

4.2.L. 05130203120.

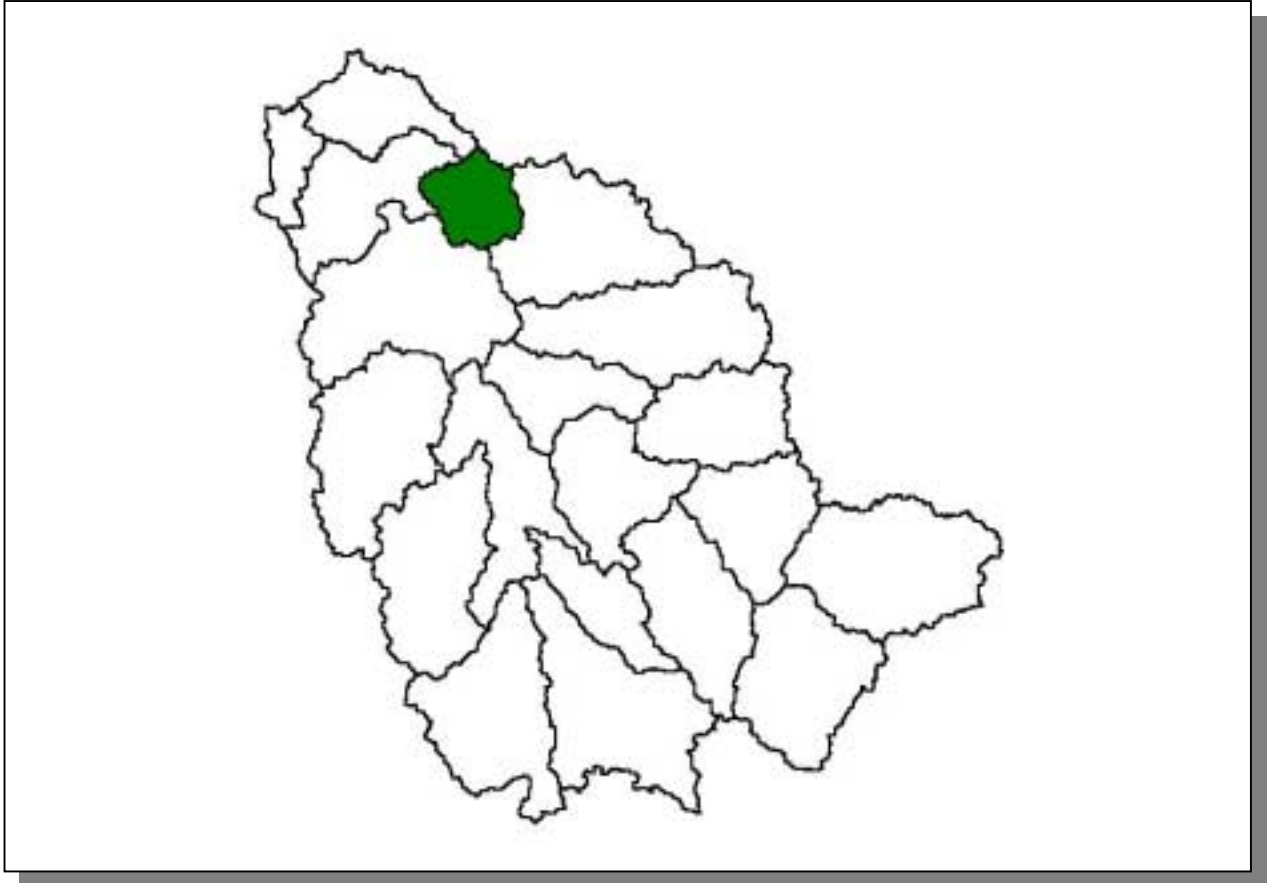


Figure 4-68. Location of Subwatershed 05130203120. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.L.i. General Description.

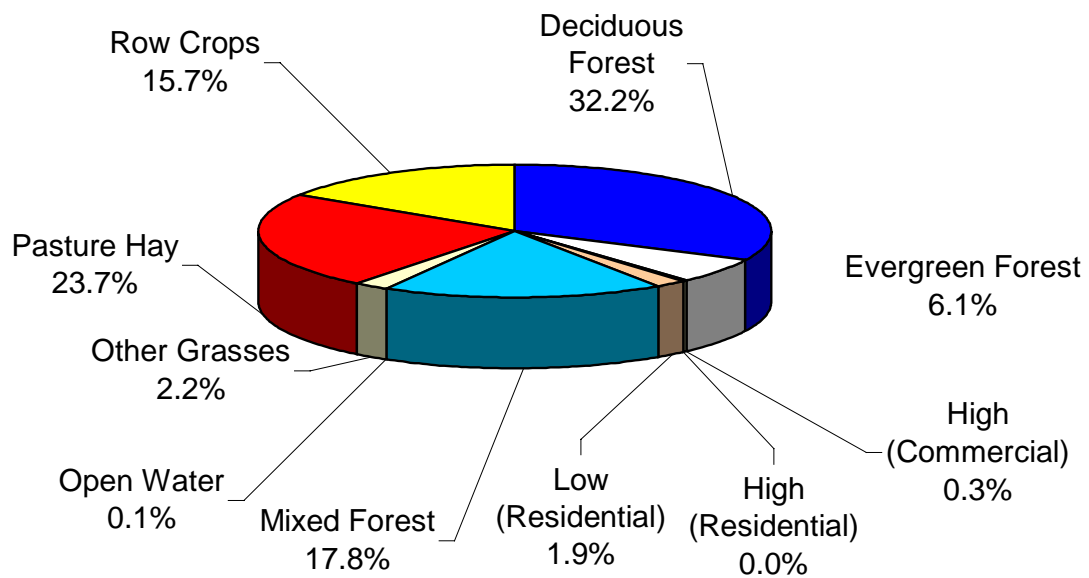


Figure 4-69. Land Use Distribution in Subwatershed 05130203120. More information is provided in Stones-Appendix IV.

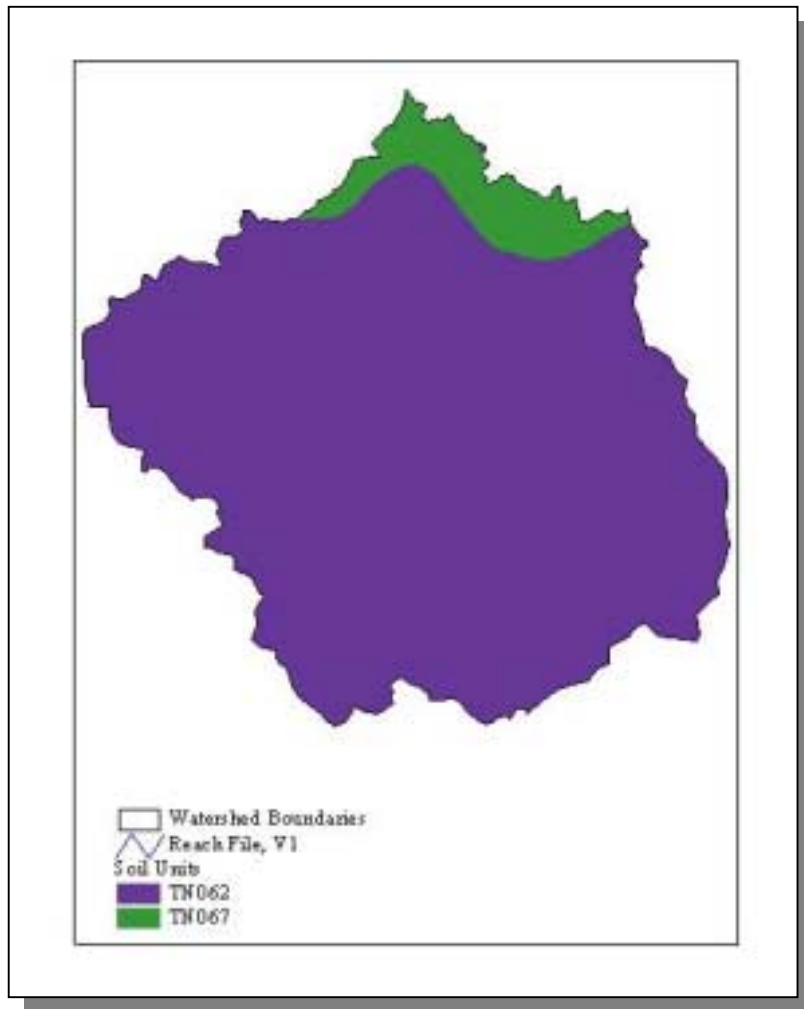


Figure 4-70. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203120.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN062	0.00	C	0.98	4.40	Clayey Loam	0.26
TN067	2.00	C	2.69	5.51	Silty Loam	0.35

Table 4-73. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203120. More information is provided in Stones-Appendix IV

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Davidson	510,784	535,032	0.03	149	156	4.7
Rutherford	118,570	159,987	0.01	17	22	29.4
Wilson	67,675	81,327	3.59	2,432	2,922	20.1
Totals	697,029	776,346		2,598	3,100	19.3

Table 4-74. Population Estimates in Subwatershed 05130203120.

4.2.L.ii. Point Source Contributions.



Figure 4-71. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203120. More information, including the names of facilities, is provided in Stones-Appendix IV.

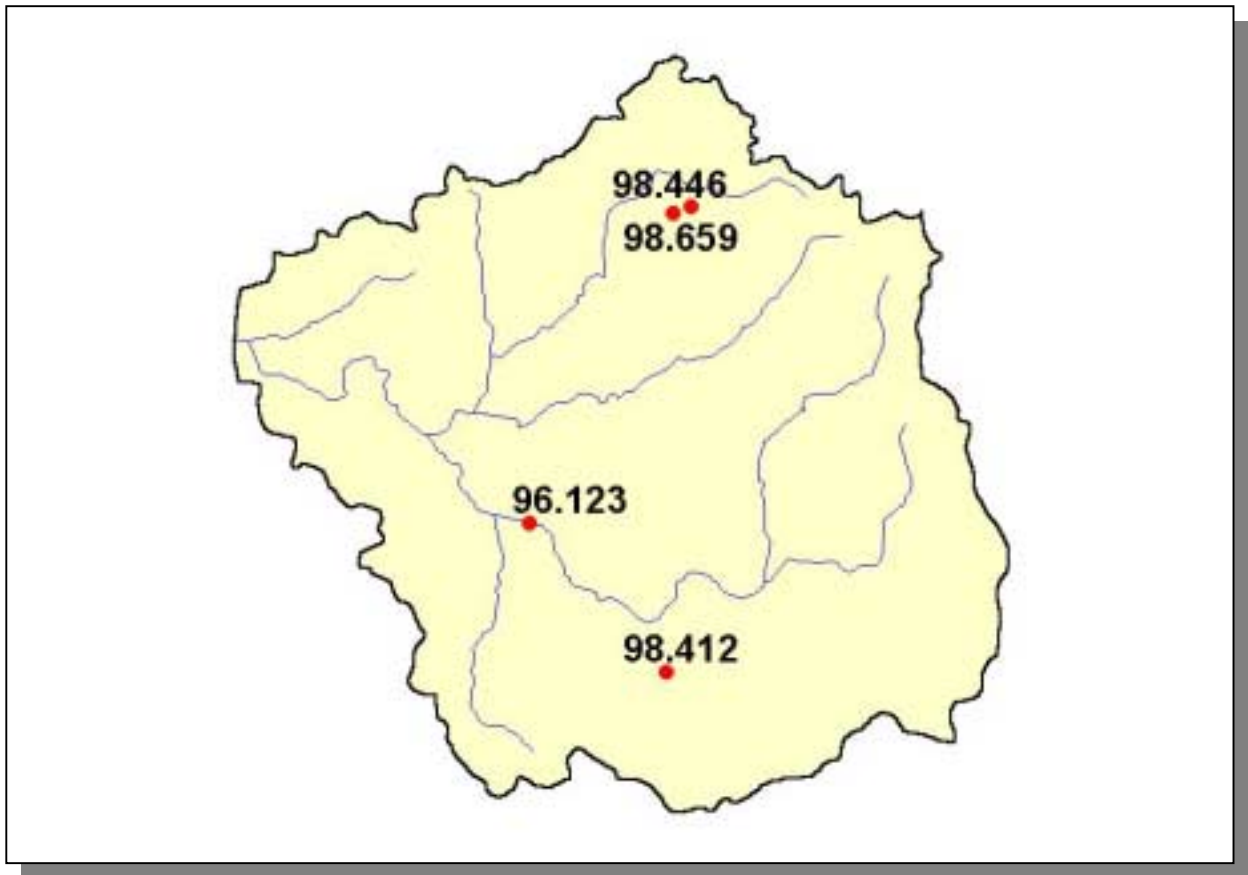


Figure 4-72. Location of Permitted ARAP Sites (Individual Permits) in Subwatershed 05130203120. More details may be found in Stones-Appendix IV.

4.2.L.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
940	1,811	52	<5	59	16

Table 4-75. Summary of Livestock Count Estimates in Subwatershed 05130203120. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Davidson	108.7	108.1	2.3	9.7
Rutherford	155.7	155.7	0.4	0.9
Wilson	98.1	97.0	1.7	6.8
Total	362.5	360.8	4.4	17.4

Table 4-76. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 05130203120.

CROP	TONS/ACRE/YEAR
Soybeans (Row Crops)	6.77
Grass (Pastureland)	0.43
Non Agricultural Land Use	0.00
All Other Close Grown Cropland	2.49
Grass (Hayland)	0.37
Grass,Forbs, Legumes (Mixed Pasture)	0.91
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.26
Corn (Row Crops)	2.23
Forest Land (Grazed)	0.00
Tobacco (Row Crops)	19.23
Wheat (Close Grown Cropland)	1.96
Legume Grass (Hayland)	0.38
Berry (Horticultural)	0.47
Cotton (Row Crops)	4.79
Legume (Hayland)	0.32
Legume (Pastureland)	0.12
Conservation Reserve Program Land	0.28

Table 4-77. Annual Estimated Total Soil Loss in Subwatershed 05130203120.

4.2.M. 05130203130.

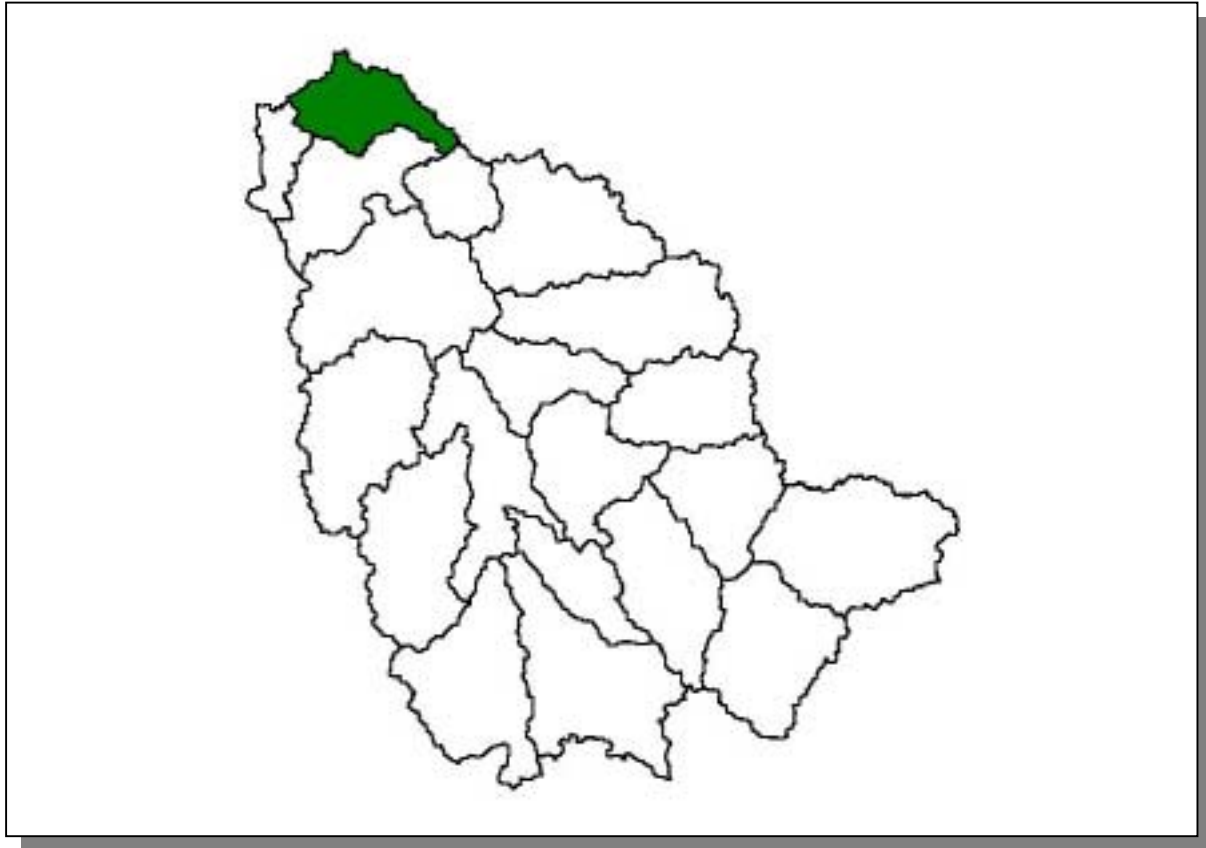


Figure 4-73. Location of Subwatershed 05130203130. All Stones HUC-14 subwatershed boundaries are shown for reference.

4.2.M.i. General Description.

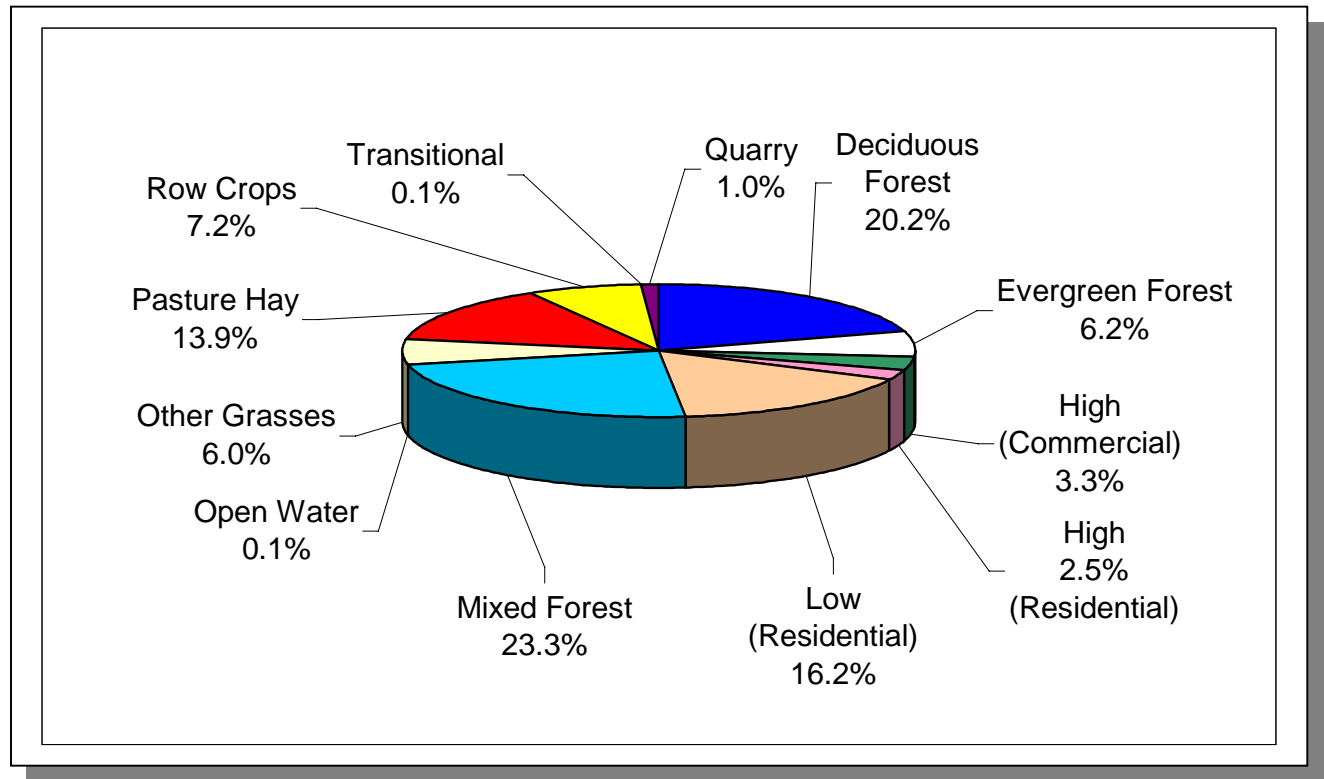


Figure 4-74. Land Use Distribution in Subwatershed 05130203130. More information is provided in Stones-Appendix IV.

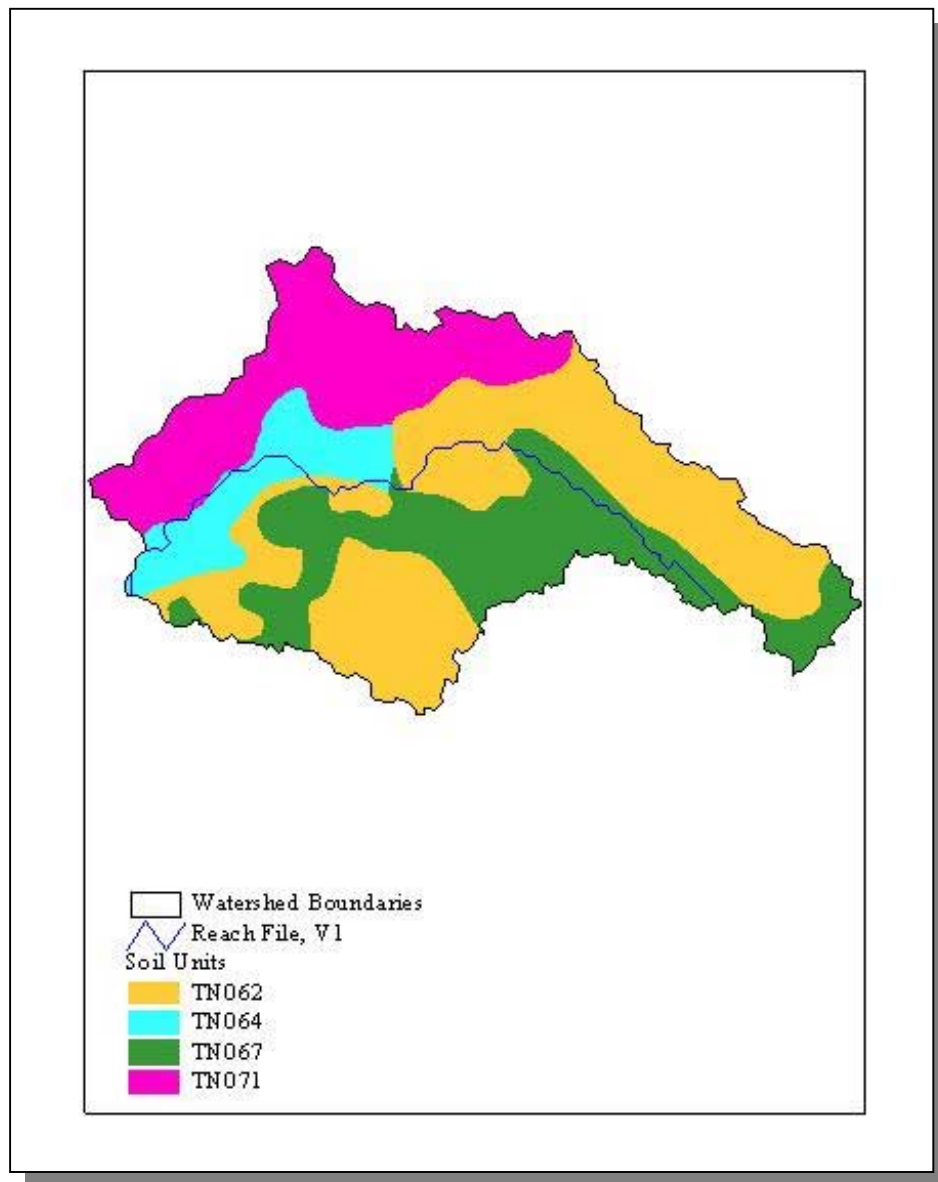


Figure 4-75. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203130.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN062	0.00	C	0.98	4.40	Clayey Loam	0.26
TN064	7.00	C	1.19	5.82	Silty Loam	0.37
TN067	2.00	C	2.69	5.51	Silty Loam	0.35
TN071	0.00	C	2.37	5.70	Silty Loam	0.33

Table 4-78. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 05130203130. More information is provided in Stones-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Davidson	510,784	535,032	2.93	14,953	15,662	4.7
Wilson	67,675	81,327	2.53	1,710	2,056	20.2
Totals	578,459	616,359		16,663	17,718	6.3

Table 4-79. Population Estimates in Subwatershed 05130203130.

NUMBER OF HOUSING UNITS						
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Mount Juliet	Wilson	5,389	1,926	1,265	661	0
Nashville (remainder)	Davidson	488,518	219,521	203,640	15,576	305
Total		493,907	221,447	204,905	16,237	305

Table 4-80. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 05130203130.

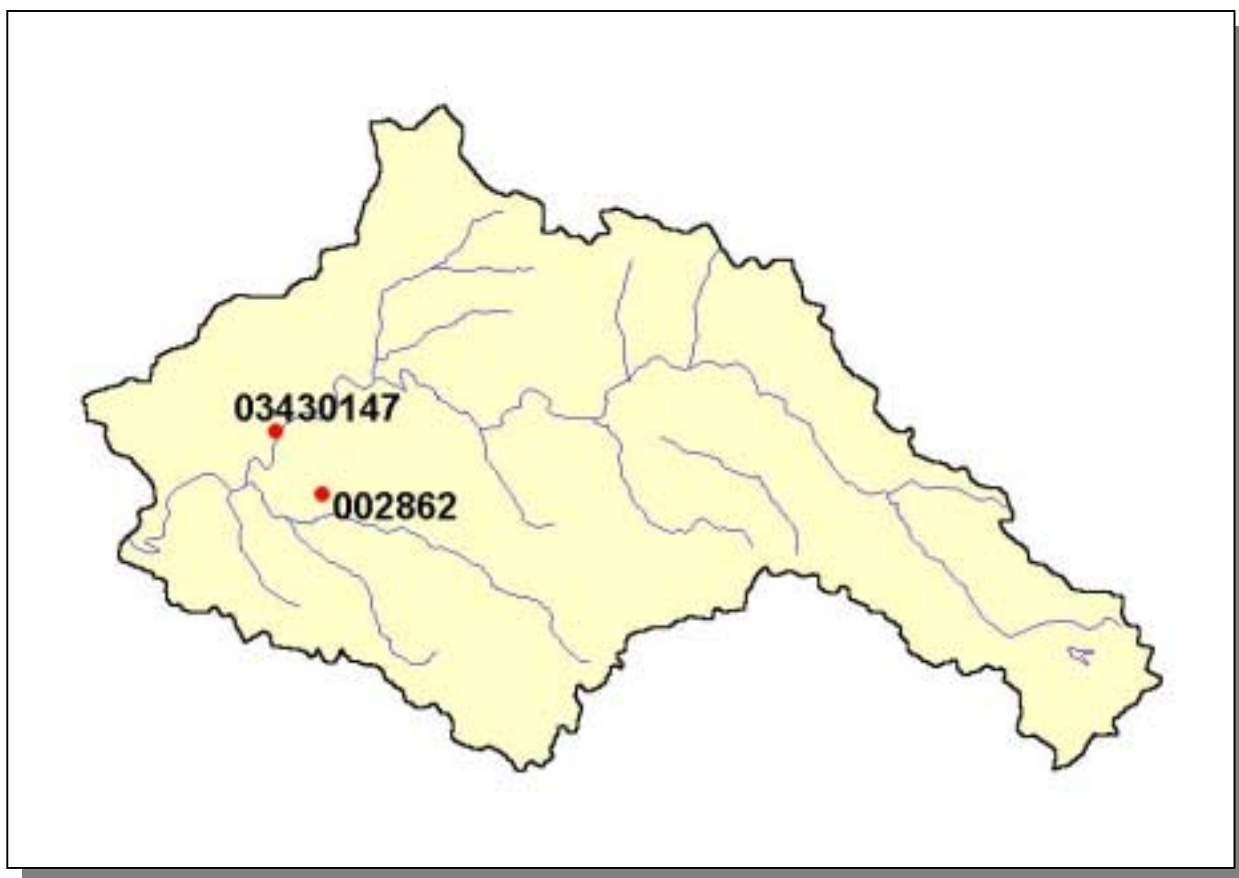


Figure 4-76. Location of STORET Monitoring Sites in Subwatershed 05130203130. More information is provided in Stones-Appendix IV.

4.2.M.ii. Point Source Contributions.



Figure 4-77. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 05130203130. More information, including the names of facilities, is provided in Stones-Appendix IV.

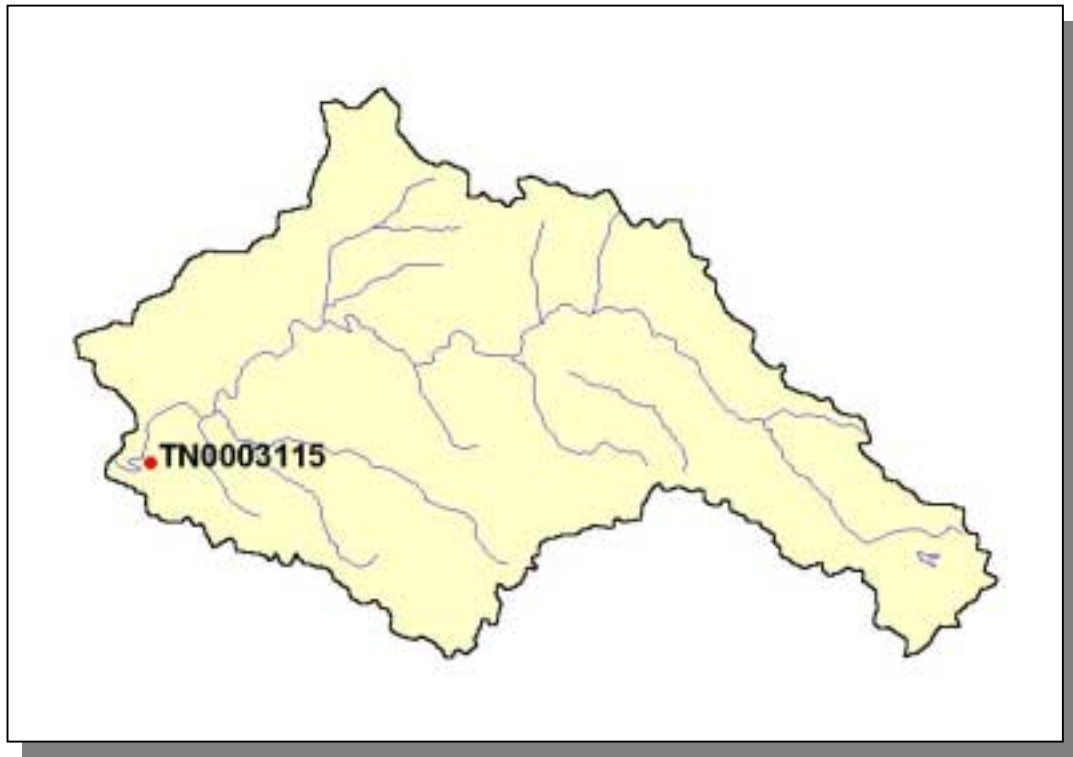


Figure 4-78. Location of Active Mining Sites in Subwatershed 05130203130. More information, including the names of facilities, is provided in Stones-Appendix IV.

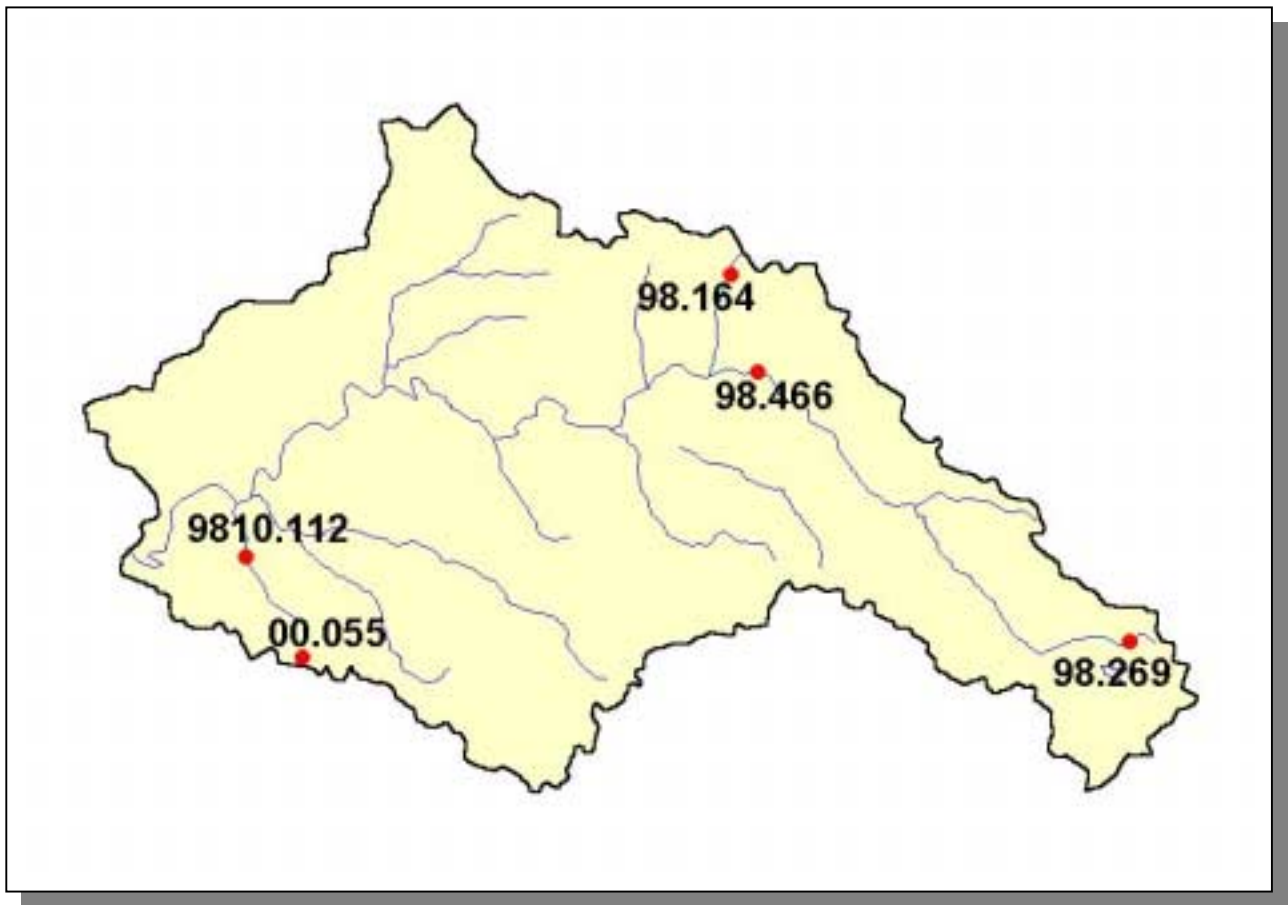


Figure 4-79. Location of ARAP Sites (Individual Permits) in Subwatershed 05130203130.
More details may be found in Stones-Appendix IV.

4.2.M.ii.a. Dischargers to Waterbodies Listed on the 1998 303(d) List.

There is one NPDES facility discharging to water bodies listed on the 1998 303(d) list in Subwatershed 05130203130:

- TN0060119 discharges to a tributary to the Stones River @ RM 4.2



Figure 4-80. Location of NPDES Discharger to Water Bodies Listed on the 1998 303(d) List in Subwatershed 05130203130. The names of facilities are provided in Stones-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QLTA
TN0060119	0	0	0	0.0025

Table 4-81. Receiving Stream Flow Information for NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 05130203130. Data are in million gallons per day (MGD). Data were calculated using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

4.2.M.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
539	1,663	30	<5	39	9

Table 4-82. Summary of Livestock Count Estimates in Subwatershed 05130203130.
According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Davidson	108.7	108.1	2.3	9.7
Wilson	98.1	97.0	1.7	6.8
Total	206.8	205.1	4.0	16.5

Table 4-83. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 05130203130.

CROP	TONS/ACRE/YEAR
Soybeans (Row Crops)	11.00
Grass (Pastureland)	0.43
Non Agricultural Land Use	0.00
All Other Close Grown Cropland	2.37
Grass (Hayland)	0.22
Grass, Forbs, Legumes Mixed Pasture)	0.72
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.30
Corn (Row Crops)	2.22
Forest Land (Grazed)	0.00
Tobacco (Row Crops)	19.23
Wheat (Close Grown Cropland)	1.96
Legume Grass (Hayland)	0.37

Table 4-84. Annual Estimated Total Soil Loss in Subwatershed 05130203130.